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ENERTEC

Oscilloscope

5220

TECHNICAL AND MAINTENANCE MANUAL

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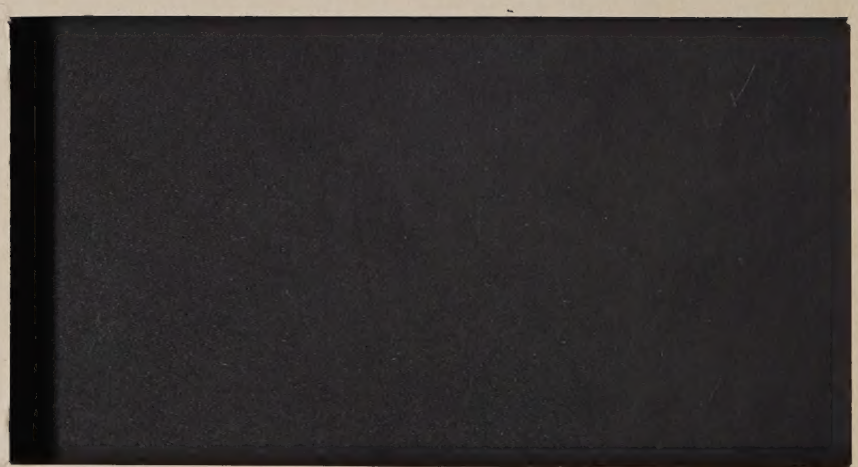

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Oscilloscope

5220

TECHNICAL AND MAINTENANCE MANUAL

820920

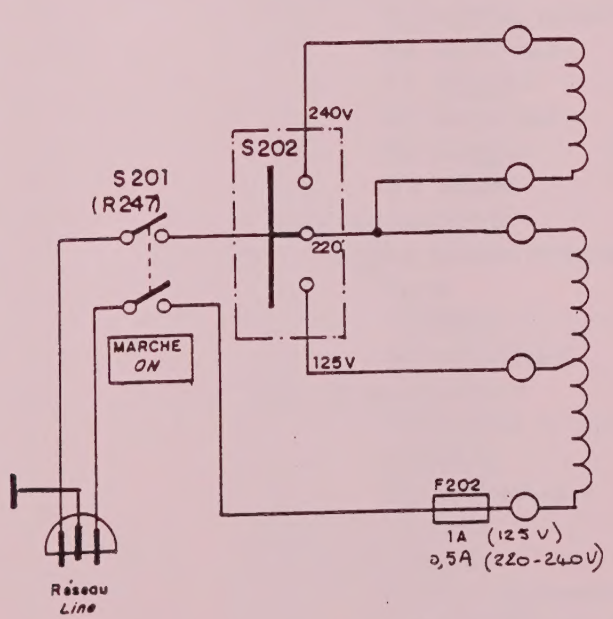
CHANGE

5220 - 5224 oscilloscopes for England

POWER SUPPLY (Fig. 2):

Fuse F201 is removed.

Fuse rating of F202: 1 A on 125 V
0,5 A on 220 V - 240 V



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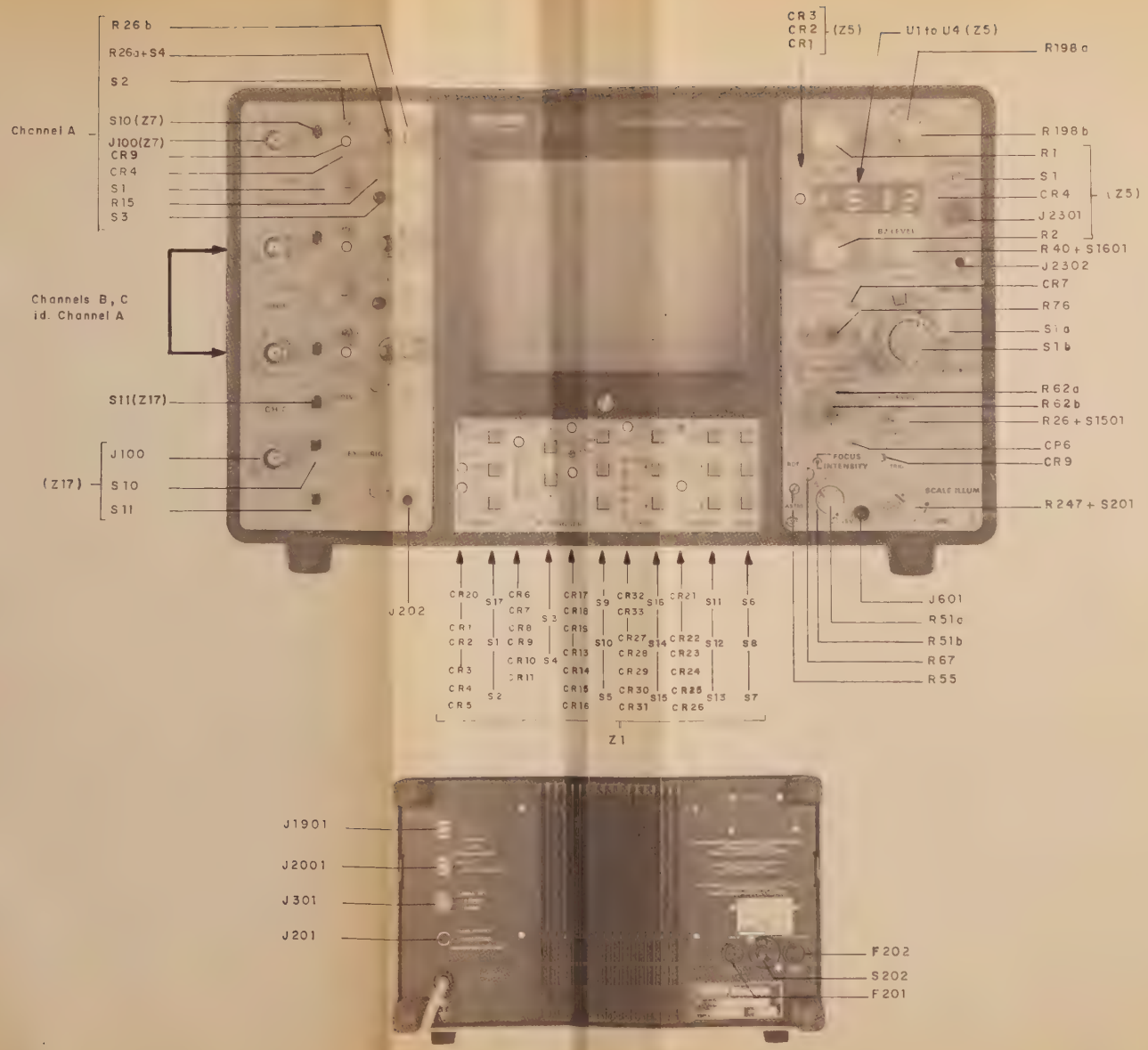
6. - PARTS LIST



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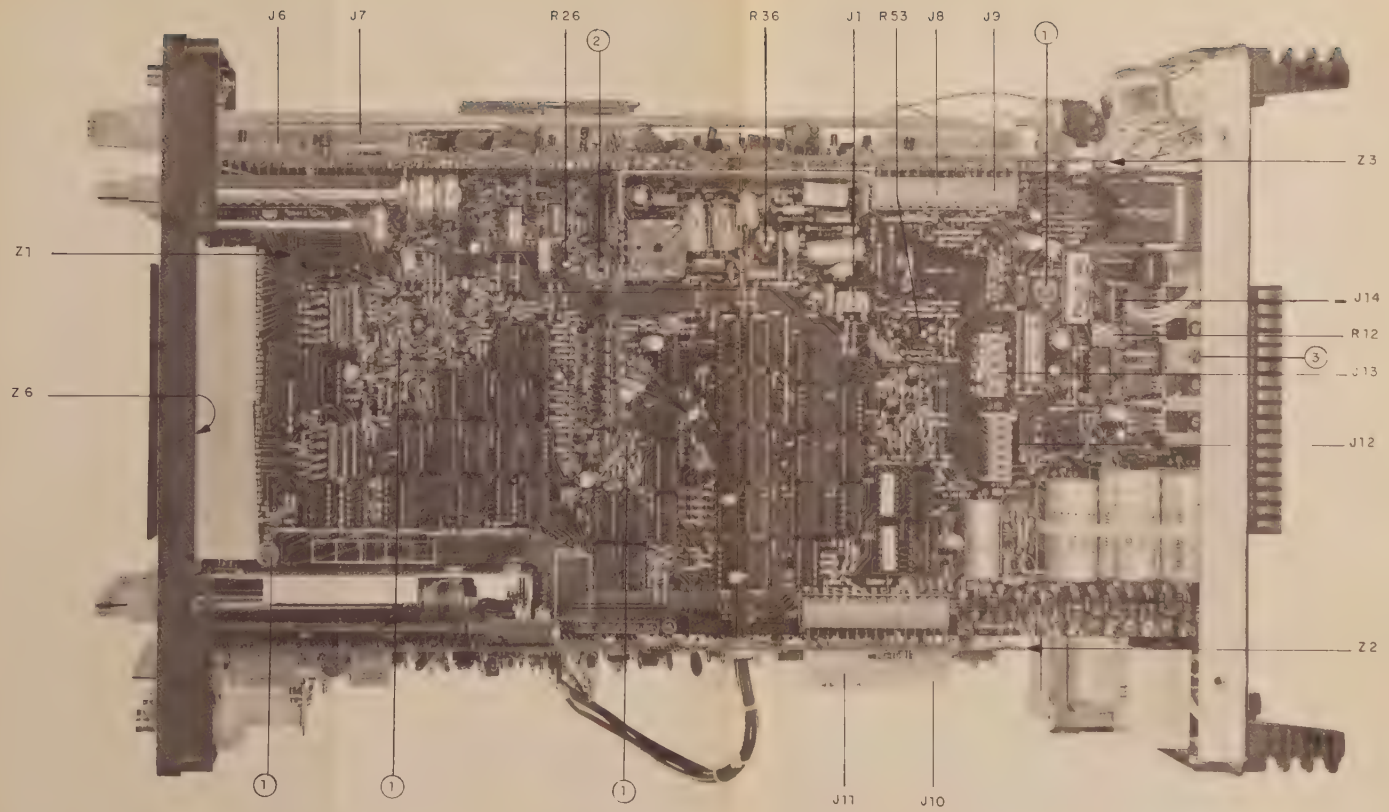
P2 | VUE DE DESSOUS | BOTTOM VIEW



Rollier
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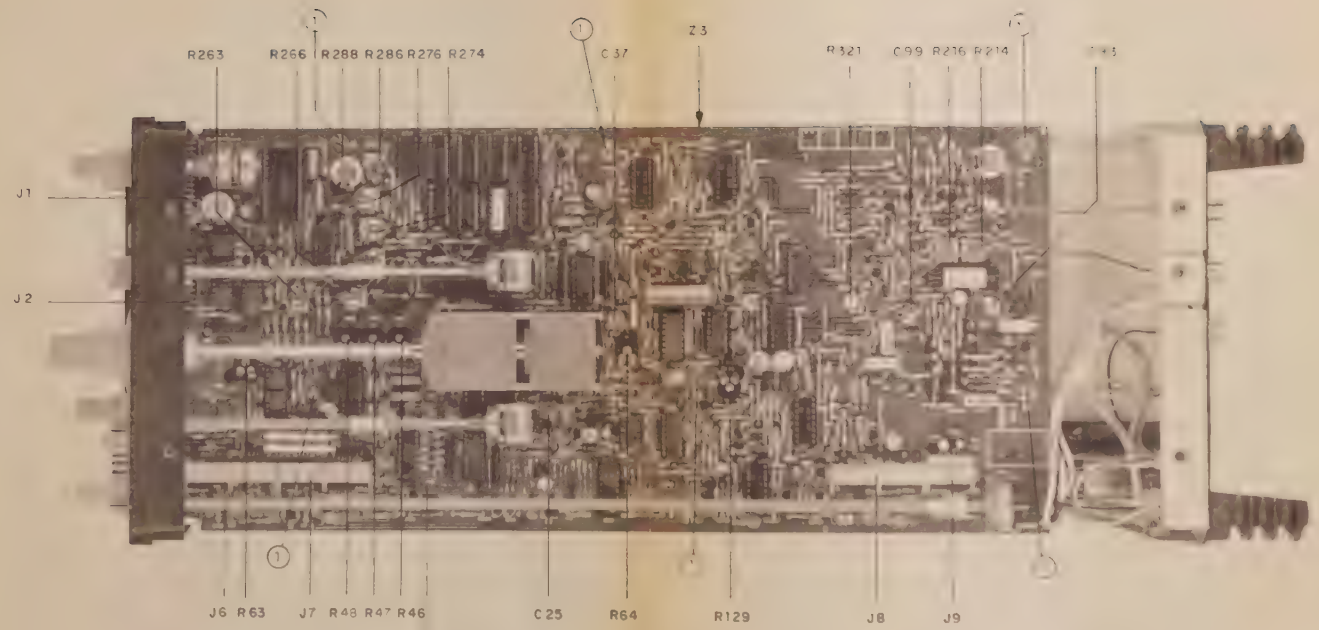
P3 VUE DE DROITE RIGHT VIEW



Résitance R30

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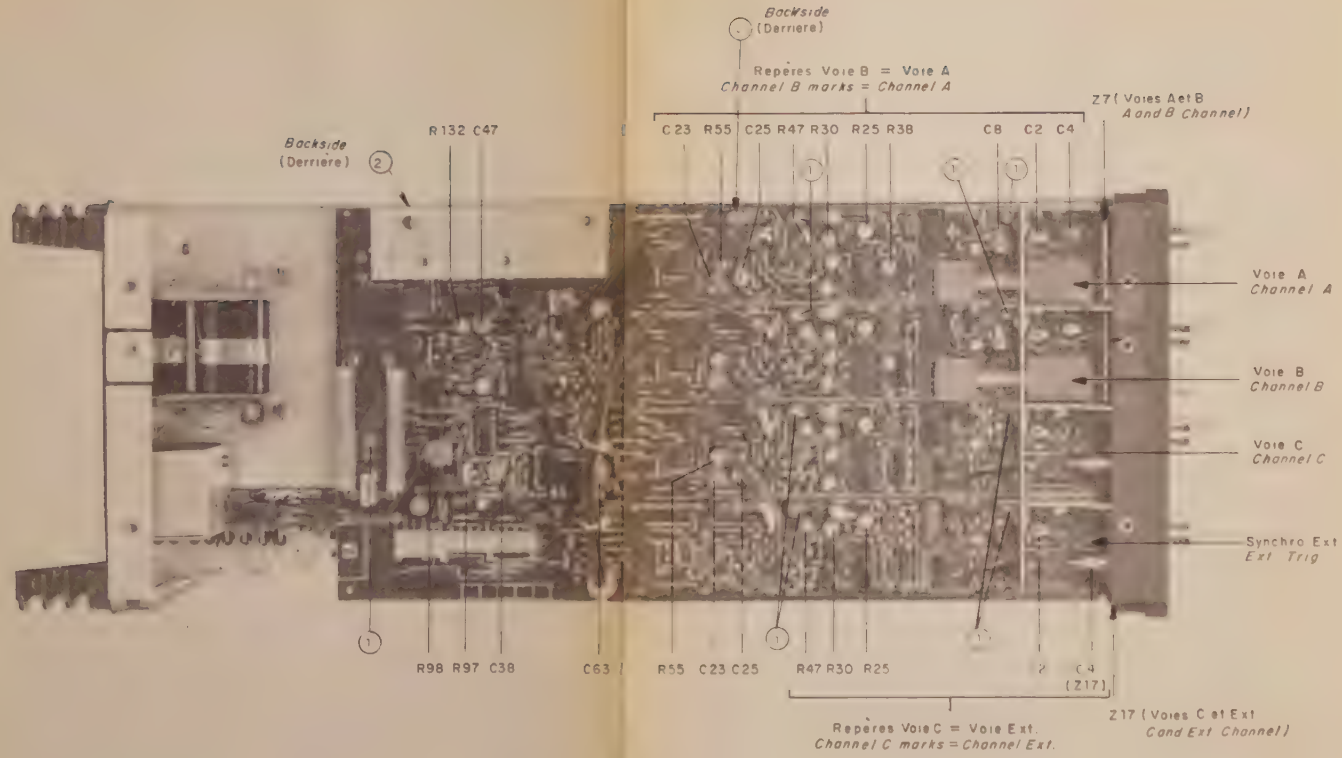
P4 | VUE DE GAUCHE

LEFT VIEW



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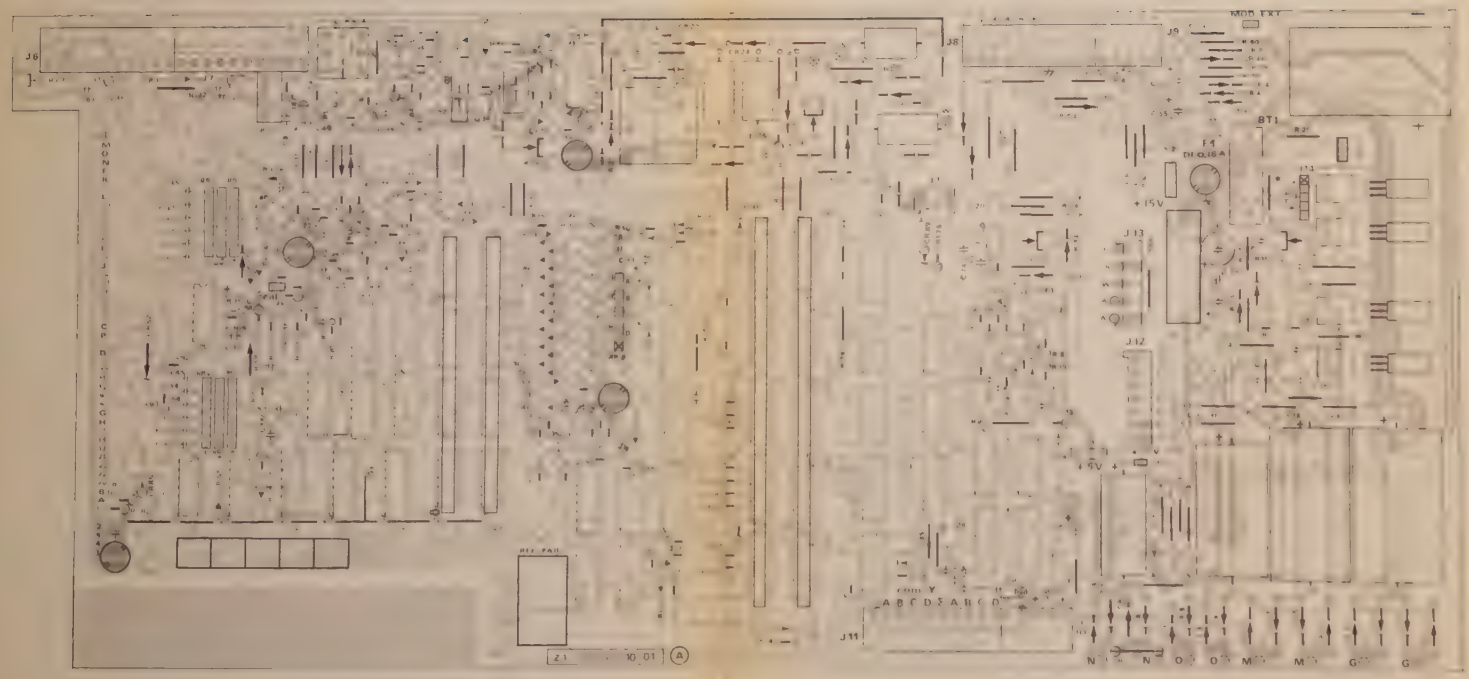
J6
J8
J9
MOD EXT
BT1
F1
DI-0,16 A
+15V
J13
J12
J11
Z1
10_01
A

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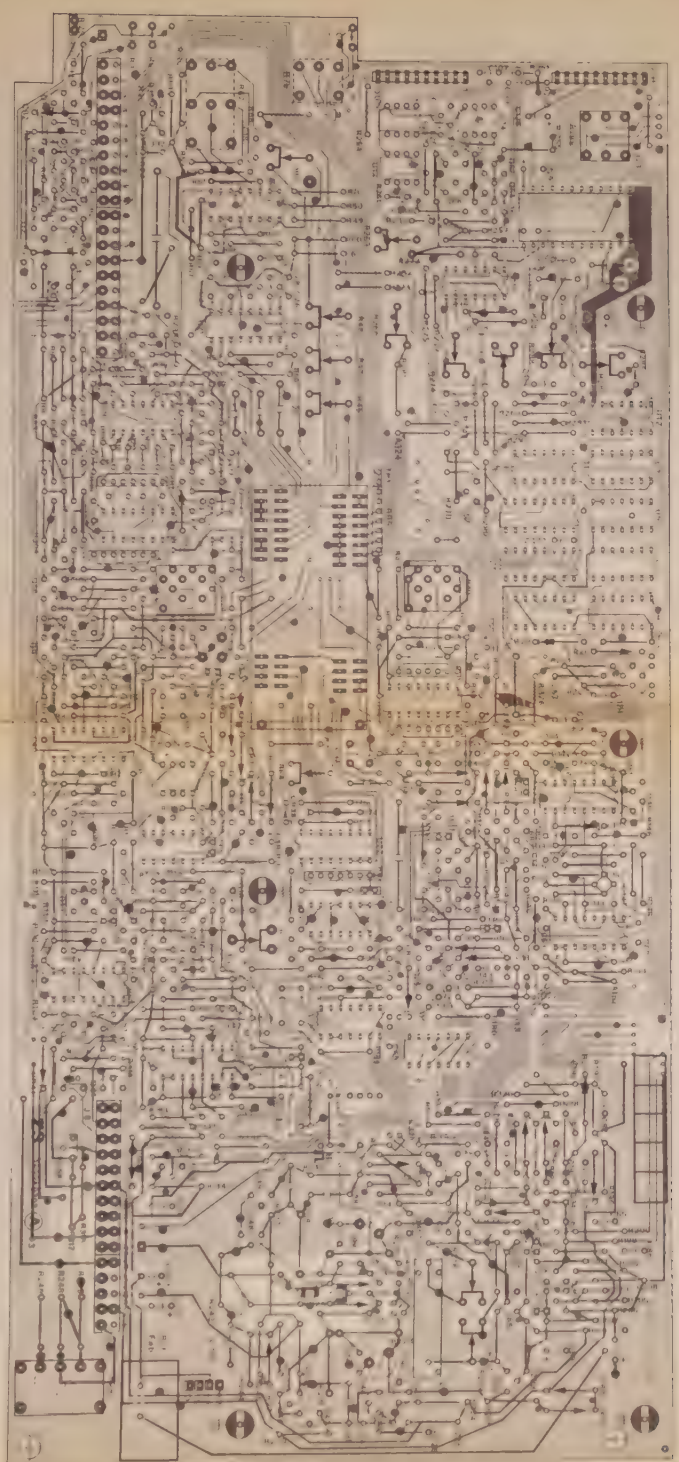
CIRCUIT Z3



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1. - TECHNICAL SPECIFICATION

1.1. - GENERAL

The 5220 oscilloscope has a 100 MHz bandwidth, a double time base and two vertical channels A, B and a third channel C for triggering. The large rectangular screen cathode ray tube presents a good trace brightness.

Channels A, B and C can be used separately, or simultaneously in chopping or alternating modes, or using algebraic sum (A $\pm$ B), each channel can be inverted.

The double time base (B1, B2) makes possible the following sweep modes : B1 only, B1 delaying and intensified by B2, B2 delayed only, B1 and B2 mixed. Triggering is internally controlled from channels A, B, C, or from mains supply, or through external signal ; triggering is possible above 100 MHz.

A light-emitting diode keyboard indicating the selected functions controls Y, X, trigger B1 and B2 modes. Two selected functions storages improve handiness of the oscilloscope.

A digital display makes possible DC voltages measurements applied to a "Voltmeter" input, or display of lapse of time between two points screen-observed phenomenon.

1.2. - VERTICAL DEFLECTION

The 3 independent vertical channels A, B, C, have an ON/OFF switch (with a lamp), an input coupling selector, a sensitivity switch, a gain vernier and a shift control. The channels A and B have a signal latching push-button.

1.2.1. - Operating modes

The selected functions can either be alternated at each sweep or chopped on a selected frequency (chopping time on each channel : about 1 μ s).

Fundamental modes :

- A B C : 3 independent displays : Channels A, B, C
- A+B C : 2 displays, one of them is the algebraic sum of channels A and B signals
- A, A+B, B, C : 4 displays : channels A, B, C and algebraic sum of channels A and B signals.

Secondary modes :

- Each channel can be cut-off (lamp is out), it is possible to have 1, 2, 3 or 4 traces. The triggering sources are not affected by these cuts.
- Sum or difference of input signals on "A + B" mode can be obtained by an inversion control on each channel.

1.2.2. - Sensitivity and bandwidth

Channels A and B

- 11 calibrated ranges, 2 mV/div. to 5 V/div., 1-2-5 sequence. Continuous adjustment of gain by 2.5 vernier with lamp : "uncal".
- Calibration accuracy (vernier on "CAL") : ± 3%
  (on range : 2 mV/div. : ± 5%)

Bandwidth at - 3 dB (reference : 50 kHz with 6-div. signal amplitude)

- 5 mV/div. to 5 V/div. : 100 MHz
  (calculated time : 3.5 ns ; see appendix 1)
- on 2 mV/div. position : 50 MHz

Channel C

- 2 calibrated ranges : 0.1 V/div. and 1 V/div. Continuous adjustment of gain by 2.5 vernier, with lamp "UNCAL". Calibration accuracy (vernier on "CAL") : ± 3%
- Bandwidth at - 3 dB : 100 MHz.

Aberrations :

- during the first 50 ns : $\leq \pm 5\%$
- after the first 50 ns : $\leq \pm 2\%$
- add ± 2% when channel is inverted

Note : the 3 channels bandwidth can be reduced to 20 MHz by a contact for particular case.

1.2.3. - Inputs : BNC-type coaxial jacks

Input coupling :

DC : signal is direct-coupled

0 : signal is disconnected and the input grounded

AC : dc component is blocked (10 Hz bandwidth)

Input impedance :

- without probe : 1 MΩ paralleled by about 20 pF
- with 1/10 probe : 10 MΩ paralleled by about 12 pF

Maximum permissible input voltage (with or without probe)

± 350 V dc (including superimposed signal peaks)

700 V ac peak to peak (F ≤ 1 kHz)

1.2.4. - Delay line visible delay

About 20 ns.

1.3. - HORIZONTAL DEFLECTION

Double time base : B1 main sweep
B2 delayed sweep

1.3.1. - Operating modes

. B1	: B1 sweep only
. B1 + B2	: B1 delaying B2, B2 intensified
. B2	: B2 only, delayed by B1
. Mixed	: B1 and B2 mixed, B2 delayed by B1
. XY	: Vertical deflection signal selected by Y mode, horizontal deflection signal selected by triggering source B1
. x10	: Horizontal deflection can be magnified by a factor of 10

1.3.2. - B1 time base

Sweep rates :

- 22 calibrated ranges, 50 ns/div. to 0.5 s/div. 1-2-5 sequence ; brings fastest sweep rate to 5 ns/div. with magnification by a factor of 10 .

- Continuous adjustment of sweep rate by 2.5 vernier calibration accuracy, with "UNCal B1" lamp
- Calibration accuracy (vernier on "CAL") : ± 3%
  accuracy : add ± 2% to x10 accuracy.

Hold-off :

A "Hold-off" potentiometer makes possible B1 sweep recurrence variation, with no modification of calibration in rate/div.

Delay system :

-"Delay 1" ten-turn potentiometer allowing B2 start any where on B1 course

-"Delay 2" potentiometer is used only for "Δt" time differential measurements (see paragraph 1.6).

1.3.3. - B1 trigger

Trigger source :

COMP : Composite internal source, each channel delivers the trigger signal when being operated : trigger signals are always added (algebraic sums: A+B) even in channel inversion

A : internal signal from channel A

B : internal signal from signal B

C : internal signal from channel C

EXT : external signal applied to "EXT. TRIG." jack.
. input signal atténuation : 1 or 1/10.
. input characteristic (coupling, impedance, max. permissible voltage) : see channels A, B or C.

LINE : signal from power supply, on mains frequency

Trigger signal coupling modes :

⎓ : dc coupling

∿ : ac coupling

⎍ : integrated coupling preventing triggering on high-frequency signals (cut : about 100 kHz)

⎎ : differentiated coupling preventing triggering on low-frequency signals (cut : about 15 kHz)

Sweep control modes :

- Automatic : Sweep runs even when there is no trigger signal. When signals are present (amplitude >2 div., 1 kHz < F < 20 MHz), sweep is automatically triggered whatever the level position may be
- Triggered : sweep awaits a trigger signal before starting
- Single : only one sweep takes place ; there are a momentary -contact RESET push-button and a READY lamp

Level and polarity

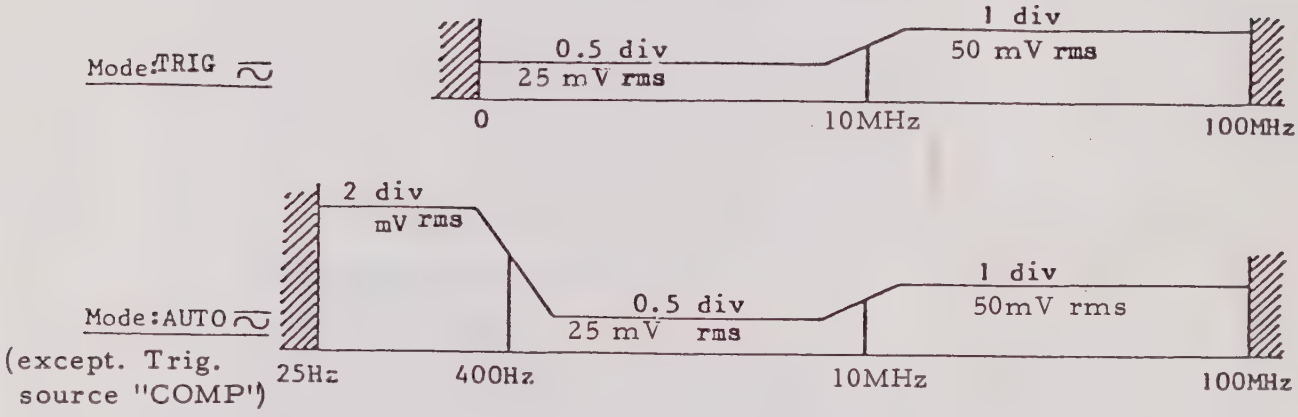
Control potentiometer adjusts trigger level, with selection of triggering on rising slope (⎍) or falling slope (⎎) of signal (deviation : about 3 screens). B1 triggering is indicated by a lamp.

Trigger frequency ranges

	Triggered	Automatic
⎓	0 - 100 MHz	25 Hz - 100 MHz
∿	10 Hz - 100 MHz	25 Hz - 100 MHz
⎍	0 - 100 kHz	25 Hz - 100 kHz
⎎	15 kHz - 100 MHz	15kHz - 100 MHz

Minimum level for triggering (front : ⎍)

in div (int. triggering) and mV rms (ext. triggering)



1.3.4. - B2 time base

Sweep rates :

- 19 calibrated ranges, 50 ns/div to 50 ms/div, 1-2-5 sequence; minimum rate 5 ns/div with magnification by a factor of 10
- continuous adjustment of sweep rate by 2.5 vernier calibration accuracy, with "UNCAL B2" lamp
- calibration accuracy (vernier on "CAL") : ± 3%
  add ± 2% to x10 accuracy

1.3.5. - B2 trigger

Sweep control modes :

- Starts : B2 starts at the end of selected delay
  Jitter ≤ 1/20.000 th of B1 sweep total duration
- TRIG : B2 triggered by triggering signal at the end of selected delay

Triggering sources :

COMP	: composite internal source; each channel delivers the trigger signal when being operated; in algebraic sum, trigger signals are always added, even in channel inversion
A	: internal signal from channel A
B	: internal signal from channel B
C	: internal signal from channel C
Ext.	: external signal applied to "EXT. TRIG." connector.

Signal coupling : dc coupling

Level and polarity

Control potentiometer adjusts trigger level, with selection of triggering on rising slope (⎍) or falling slope (⎎) of signal. (deviation: about 3 screens)

Minimum level for triggering : (front ⎍)

0 to 10 MHz : 0.5 div (Ext. : 25 mV rms)

10 MHz to 50 MHz : 1 div (Ext.: 50 mV rms)

1.3.6. - XY mode

Selected channels in Y mode used for vertical deflection, and selected source in B1 trigger is used for horizontal deflection.

Chopped mode only is possible, allowing 4 XY displays.

Calibration accuracy in X : $\pm$ 5%

Phase error between channels X and Y : $\leqslant$ 3° at 1 MHz.

1.4. - FUNCTIONS CONTROLS

Selections of Y, X, B1 and B2 trigger modes are located on a keyboard made of a number of search buttons and lamps indicating the selected functions.

Logical forbiddings between incompatible functions prevent handling errors and make use simpler.

When the instrument is stopped, the displayed functions are saved and automatically selected when switching on.

M1 and M2 contacts make possible storage of a complete set of selected functions. A function can be immediately found again thanks to another contact, even after a period of non operation of the oscilloscope.

1.5. - DC VOLTAGES MEASUREMENTS (voltmeter)

Measurements are accomplished in relation to the oscilloscope ground (same reference as all the other meter inputs).

1.5.1. - Input

- Input impedance : about 10 MΩ paralleled by C < 10 pF
- Maximum permissible voltage : 1.5 kV

1.5.2. - Reading

- 7-segment + decimal point light emitting diodes, 8 mm high, capacity : Three figures 1/2 (displayed number ≤ 1999).
- Unit : Volt (indicated by a lamp in "Voltmeter" mode)
- Polarity : automatically displayed

1.5.3. - Sensitivities

- 4 automatically chopped ranges :
  full scale : 1.999 V
  19.99 V
  199.9 V
  1999 V (safety limit at 1500 V)
- Minimum resolution : 10 mV
- Calibration accuracy (at 23°C) : ± (1% full scale + 1 digit)

1.6. - TIME MEASUREMENT (Δt)

. X mode : B1 + B2 (or B2 only)

. B2 trigger : STARTS, B1 vernier on "CAL"

1.6.1. - Principle of measurement

"Delay 1" and "Delay 2" potentiometers are alternatively used for B2 sweep delay compared with B1 start; in "B1 + B2" mode the user can intensity two points, anywhere on the sweep.

"Δt" is displayed between these two intensified points.

Superpositioning of both traces makes possible the refinement of the measurement by "B2" mode (only).

1.6.2. - Reading

- Display segments (see paragraph 1.5.2)
- Unit : ms, µs or ns, indicated by a lamp
- Polarity : automatically displayed
  "+" when delay 1 comes before delay 2
  "-" opposite case

1.6.3. - Sensitivities

- 1999 ns to 1999 ms (full scale), automatic chopping of ranges according to B1 Time/div." selector position
- minimum resolution : 0.1 ns
- calibration accuracy : $\pm$ (1% full scale + 1 digit + 1 ns)

Note : The voltmeter is overloaded and the decimal points light when delay is above 1.999 ms, on the slowest position (0.5 s/div).

1.7. - CATHODE RAY TUBE

- Type : D14 652 TELEFUNKEN
- Screen : rectangular
- Internal graticule scaled with 8 x 10 divisions (1 div. = 0.97 cm), adjustable illumination
- Phosphor : P31
- Accelerating potential : about 12 kV

External beam modulation :

. BNC-type coaxial connector on rear panel

. Spot blanked by positive voltage (about 5 V)

. Bandwidth : 0 - 20 MHz

. Input impedance : 1 kΩ

- Maximum permissible voltage : 25 V peak to peak

1.8. - AUXILIARY OUTPUTS

1.8.1. - Probe adjustment (on front panel)

. Rectangular positive signal

. Amplitude : 0.5 V ± 3%

. Frequency : Between 500 Hz and 2 kHz

1.8.2. - B1 and B2 intervals

. Two BNC-type coaxial connectors on rear panel

. Negative intervals, same duration as B1 and B2 sweep sawtooth

. Amplitude (ECL) : level 1 : about-0.8 V
level 0 : about-1.8 V

1.8.3. - Probe power (option)

Jack on rear panel delivering + 15 V, + 5 V and - 15 V, used for 50 076-type active probe power.

1.9. - POWER REQUIREMENTS

Mains supply : voltages : 125 V (- 8 + 12%)
220 V - 240 V (± 10%)
frequency : 48 Hz to 420 Hz

. Power consumption : about 90 VA

. Fuse rating : 125 V : 1 A (D1TD)
220 V
240 V 0.5 A (D1TD)

1.10. - ENVIRONMENT

Temperature :

Operating temperature range : 0°C to + 50°C

Full performance range : + 10°C to + 40°C

Storage temperature range : - 20°C to + 70°C

Humidity test :

80% relative humidity at + 40°C for 10 days.

Vibration test :

Frequency : 0 to 23 Hz

Amplitude : ± 0.5 mm

Duration : 10 minutes, each axis

1.11. - DIMENSIONS-WEIGHT

Height : 170 mm (4 U)
Width : 300 mm
Depth : 450 mm
Weight : about 9 kg

1.12. - ACCESSORIES

- Supplied with instrument:

  . 1 user manual

  . 2 passive probes (1/10)

  . 1 protective cover 53210

  . 1 Sun visor PS 2303

- Available on request :

  . Accessory wallet model 53203

  . Long Sun visor PS 2304

  . Oscilloscope camera M30 or M5 with adapter plate 1820 - 29

  . Rack mounting kit 53310

  . Maintenance manual

  . Carrying case 879900043

1.13. - SAFETY MEASURES

This meter satisfies the CEI "Safety measures concerning electronic instruments", class I, document 348, it is delivered in working order.

The following notice must be carefully read through by the user to ensure a proper working of the instrument and keep it in a good state, as regards security.

Switching on :

a) check that mains voltage of the meter corresponds with that of local mains supply.

b) Check the presence of an earth connection on the distribution network.

Maintenance :

a) Disconnect the distribution network before starting any work on the meter

b) Capacitors can keep dangerous voltages (> 50 V), even after being disconnected more than 10 seconds from the mains supply

c) Any adjustment, maintenance or repair operation on switched-on meter must only be performed by a qualified technician, well-informed on the risks he runs

d) Make sure only proper fuses of the specified type are used for replacement. Any over-rating, change in the type or short-circuit is prohibited.

APPENDIX 1 - RISE TIME

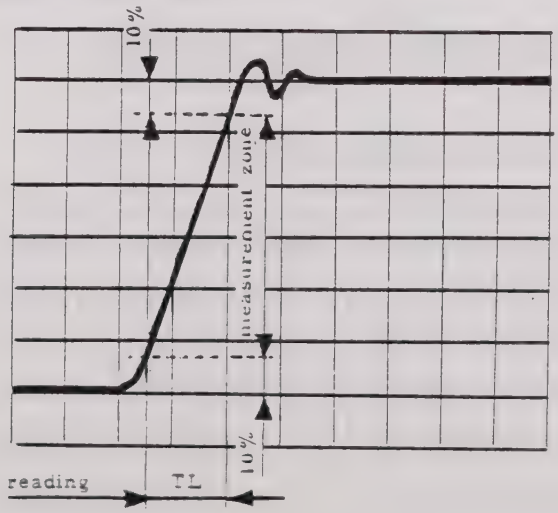
DEFINITION OF PARAMETERS

The parameters influencing read rise time TL, with respect to calculated rise time TC, are as follows :

1) Generator signal (fast edge + aberration)
2) Connecting cable between generator and oscilloscope
3) Sweep rate for screen on which the rise time is read
4) Tube orthogonality.

characteristic / Parameter	Rise time	Bandwidth at - 3 dB	Observations
Generator (generator rise time TG) + cable (matching)	yes	yes	Bandwidth measured by constant emp method. Resultant rise time $TR = \sqrt{TG^2 + TC^2}$
Sweep rate	yes	no	measure sweep rate
Tube orthogonality	yes	no	6/8 X (X divisions) where X depends on tube

MEASUREMENT METHOD



To IEC standard 351
Signal at screen centre
Signal pp amplitude : 6 div.

For the 5220 the value read on the screen can be between 3.5 and 4.1 ns.

2. - OPERATION

2.1. - PRELIMINARY

2.1.1. - Carrying handle

The handle can have three positions : one for carrying the instrument, another one in which it acts as a tilt stand for ease of use of the oscilloscope on the bench, and the last one to clear the front panel when the instrument is used in its horizontal position.

Pull the handle out to change its position.

2.1.2. - Switching on

Check that voltage selector on rear panel corresponds to mains voltage.

Connect the instrument to the mains. Turn POWER ON button : lamps will light on front panel.

Two slow-blow fuses protect the instrument , they are located at rear panel : 0.5 A (220 - 240 V)
1 A (125 V)

About 20 minutes are required for the instrument to reach a stable operating temperature.

2.2. - CONTROL PARTS FUNCTIONS AND INPUT-OUTPUT TERMINALS (see plate P1)

2.2.1. - Power switch - trace control - calibration

R247	GRATICULE	Control potentiometer for :
S201	POWER ON	a) Power on/off push-button (far left position) b) Scaled graticule brightness control
R51 a	INTENSITY	Trace brightness adjustment control potentiometer
R51 b	FOCUS	Trace definition adjustment control potentiometer
R55	ASTIG	Astigmatism adjustment control potentiometer, adjust with R51 b
R67	ROT.	Trim control for adjusting horizontal alignement of trace.

J601	⎍ .5 V	Terminal delivering positive rectangular signals used for probes adjustments (amplitude 0. 5 V, frequency : about 1 kHz).

2.2.2. - Operating modes selection

Y MODE

S17	BW	Contact used for selecting a normal bandwidth or a bandwidth reduced to 20 MHz.
CR20	20 MHz	Lamp indicating 20 MHz-bandwidth
S1		Contact for selecting alternated or chopped modes
CR1	ALT.	Lamp indicating alternated mode : selected channels are alternated at each sweep
CR2	CHOP.	Lamp indicating chopped mode : selected channels are chopped at a fixed frequency (about 1 MHz)
S2		Successive pressings on contact for selecting the needed Y fundamental mode. Three lamps indicate the selected mode :
CR3	A B C	The 3 inputs are used in turns, when used in independent channels.
CR4	A + B C	A and B inputs represent an algebraic sum channel. This channel, and channel C are used in turns.
CR5	A A+B B C	Channels A, B, C, and sum channel "A + B" are used in turns.
		Note : A, B, or C channels can be cut-off ; it is then possible to operate (derived modes) with 1, 2, 3 or 4 traces. When no channel switch in ON, screen displays channel A trace

B1 TRIGGER (X in XY)

S3 S4	↑ ↓	Successive pressings contacts for selecting B1 trigger signal source, or in XY mode that of horizontal deflection signal. The selected source is indicated by one of the 6 lamps here below :
CR6	COMP	Composite internal source ; each channel delivers the trigger signal when it is ON. In algebraic sum, trigger signals are always added (A + B), even when channel is inverted
CR7	A	Signal delivered by channel A
CR8	B	Signal is delivered by channel B
CR9	C	Signal delivered by channel C
CR12	Ext.	External signal applied to input jack "EXT TRIG"
CR11	LINE	Line frequency signal from power supply
S9		Contact by successive pressings for selecting B1 sweep control mode : the selected mode is indicated by one of the 3 lamps here below :
CR17	AUTO	Automatic mode : sweep takes place even when there is no trigger signal ; when signals are present, it is automatically triggered, whatever the threshold may be (amplitude > 2 div.).
CR18	NORM	Normal triggering : sweep is waiting for trigger
CR19	SINGLE SWP	Single sweep : sweep is not repetitive, but triggers only once. Lamp is ON when single sweep is set, ready to be triggered. Lamp flashes after sweep, waiting for reset.
S10	RESET	Contact push-button for resetting single sweep.

S5		Contact for selecting, by successive pressings, triggering signal coupling mode. The selected mode is indicated by one of the 4 lamps here below :
CR13	⎓	dc coupling
CR14	∿	ac coupling (F ⩾10 Hz)
CR15	⎍	Integrated coupling preventing high frequency signals triggering (cut : about 100 kHz)
CR16	⎎	Differentiated coupling preventing low-frequency signals triggering (cut : about 15 kHz). Note : XY mode : 4 lamps are out.

B2 TRIGGER

S16		Contact for selecting starts or trigger modes
CR32	STARTS	Lamp indicating starts mode : B2 starts at the end of chosen delay
CR33	TRIG	Lamp indicating trigger mode : B2 is triggered by a trigger signal after the end of chosen delay
S14 S15	↑ ↓	Contacts for selecting by successive pressings B2 trigger signal source. The selected source is indicated by one of the 5 lamps :
CR27	COMP	Composite internal source; each channel delivers the trigger signal when it is on. In algebraic sum, trigger signals are always added (A + B, C + D), even when channel is inverted.
CR28	A	Signal is delivered by channel A
CR29	B	Signal is delivered by channel B
CR30	C	Signal is delivered by channel C
CR31	EXT.	External signal applied to input jack "EXT TRIG" Note : These 5 lamps are out in modes : B1 (only), XY, B2 STARTS

X MODE

S11		Contact for selecting a normal horizontal amplitude, or x10 expansion of this amplitude; sweep minimal rate becomes 5 ns/div.
CR21	x10	Lamp indicating x10 expansion.
S12 S13	↑ ↓	Contacts for selecting by successive pressings the wanted horizontal mode. The selected mode is indicated by one of the 5 lamps :
CR22	XY	- XY mode : Y mode (S2 contact) selected signal is used for vertical deflection, and B1 trigger (S3-S4 contacts) selected signal is used for horizontal deflection. Do not use composite or line modes. Note : in XY mode, "chopped" mode only ; 4 XY displays can be obtained.
CR23	B1	B1 sweep only
CR24	B1 + B2	B1 appears on the screen and intensifies the part corresponding to B2, whose position depends on delay fixed after delay time set with delay control
CR25	B2	B2 sweep only, B1 delaying
CR26	MIXED	Sweep on B1 rate first, then on B2 rate after B2 delay triggering.

STORAGE

S6-S8	M1 - M2	Contacts for storing the selected functions on contact -keyboard at a given time
S7	RCL. MEM	Contact for recalling instantly a stored display or another, even after a period of non operation of the instrument : depress "RCL" button, then "M1" or "M2" according to the programme wanted. Note : When the instrument is switched-off, the front panel functions are saved, and 3 displays can be stored : front panel at switching-off time, M1 and M2.

2.2.3. - Vertical deflection

CHANNEL A - CHANNEL B - CHANNEL C

S2	ON	Channel on/off latching push-button.
CR9		Lamp indicating channel in operation
J100	1 MΩ/20 pF	Coaxial signal input jack (BNC-type)
S10		Input signal coupling mode selector :
	DC	Direct coupling
	0	Signal disconnected and input grounded
	AC	ac coupling : dc component is blocked (F > 10 Hz)
S1	V/DIV.	(only channels A and B) : 11-position rotary switch for selecting deflection factor
S11	V/DIV.	(only channel C) : 2 position switch for selecting deflection factor.
R26+S4	CAL	Vernier for continuous adjustment of deflection factor (2.5 ratio). "V/DIV." switch is calibrated with vernier in fully anti-clockwise detent position
CR4	UNCAL	Lamp indicates that switch is not calibrated when vernier not in use.
R26b	↕	Vertical trace shift control
R15	BAL	Screw-driver-adjustment trimmer for balancing out trace shift when "V/DIV" switch is turned
S3	INV	Signal-inverting contact

2.2.4. - Horizontal deflection

B1	B2		
S1 a	S1 b	TIME/DIV B1 - B2	Double switch for selecting B1 and B2 time base sweep factors, in seconds (s), milliseconds (ms), microseconds (µs) or nanoseconds (ns)
R62 b	R76	B1 VARIABLE B2 VARIABLE ↓ CAL	Vernier for continuous adjustment of sweep rates between ranges. "TIME/DIV" is calibrated when vernier is turned fully anti-clockwise.
CR6		B1 UNCAL B2 UNCAL	Lamp indicates vernier is not in use, and "TIME/DIV." switch is not calibrated.
R62 a		HOLD-OFF	Control for adjusting B1 locking time, in order to change total rate of sweep cycle, then to adjust it on observed signal frequency, with no change in sweep rate.
R26 + S1501	R40 +S1601	B1 LEVEL B2 LEVEL PUSHED PULLED	Control for adjusting sweep triggering level on triggering signal, on rising slope of signal when knob is pushed-in, on falling slope of signal when knob is pulled-out. Deviation ; about 3 screens
CR9		TRIG	Lamp to indicate when B1 sweep is triggered
J100 (Z17)		EXT. TRIG. 1 MΩ/20 pF	Coaxial signal input jack (BNC-type) for external triggering
S10 (Z17)			Input signal coupling mode selector :
		DC	Direct coupling
		0	Signal disconnected and input grounded
		AC	AC coupling : DC component is blocked (F > 10 Hz)
S11 (Z17)		1 - 1/10	1 or 1/10 attenuation selector for external triggering signal
R15 (Z17)		EQ.	1/10 attenuator balancing control
J202		⊥	Ground socket
R198a and b		↔ ↔	Double horizontal trace shift control potentiometer (thick or thin)

R1 (Z5)	DELAY 1	10-turn potentiometer controlling B2 sweep delay in relation to B1 start
R2 (Z5)	DELAY 2	10-turn potentiometer controlling in "Δt" measurement, the second B2 delay in relation to B1. Measurement of difference between both delays is directly given by logical display. Any two points on B1 trace can be pointed out by brightening "B1 + B2" mode, "Δt" value can be read immediately.

2.2.5. - DC voltage and differential time measurements - Logical display

Circuit Z5		
U1 to U4		4-segment, 7-digit display, decimal point and polarity sign are automatically chopped
S1	Δt-VOLT	Contact for selecting either : . VOLT : dc voltage measurement, applied to J2301 input . Δt : differential time measurement, between Delay 1 and Delay 2 Note : "Δt" function can be selected with "B1+B2" or "B2" modes, with B2 on "STARTS" and B1 vernier on "CAL".
CR4	V	Lamp indicates "Voltmeter" function is selected, displayed unit is Volt
CR1 CR2 CR3	ms µs ns	Lamps indicating "Δt" function is selected, displayed unit is millisecond, microsecond or nanosecond.
J2301	1.5kV max	Measured dc voltage input jack, "Voltmeter" mode
J2302	⊥	Ground socket, used as voltages measurement reference. (same as other instrument inputs)

2.2.6. - Rear panel

S202		Mains voltage selector : 125 V - 220 V or 240 V
F202		1 A fuse - D2TD type (125 V range)
F201		0.5 A fuse - D1TD type (220 V - 240 V range)

J1901 J2001	B1 ⊔ - 0.8 V / - 1.8 V B2 ⊔ - 0.8 V / - 1.8 V	Coaxial gate jacks (BNC type) delivering ECL amplitude negative pulses, with same rate as B1 and B2 sweep rates
J301	Z INPUT	Coaxial input jack (BNC type) used for modulating beam intensity by external signal
J201	PROBE POWER	Power jack for active probe.(option)

2.3. - OPERATING INSTRUCTIONS

The operations described below will help the user get accustomed to the instrument and its control.

2.3.1. - Switching on

. Center all vertical shift (3 channels) and horizontal shift controls before switching on. Channels A, B, C verniers must be placed in fully anticlockwise position (CAL), as well as B1 and B2 sweep verniers. Turnoff upwards channels A, B, C, On/off contacts (no channel is normally ON, but channel A is automatically connected if this happenedto be the case).

. DC-0-AC coupling selectors of channels A, B, C on 0
B1 TIME/DIV. : 0.5 ms
B2 TIME/DIV. : 2 µs

. FOCUS control is centered, INTENSITY on 0

. Slowly turn ON/OFF button clockwise, lamps and display segments light : the instrument in ON. Check that this button, when turned, controls graticule lighting adjustment.

2.3.2. - Function selection and trace adjustment

. Select B1 sweep by successive pressings on one of S12-S13 contacts (↕, X mode) until B1 lamp lights. Then look for AUTO automatic sweep with S9 contact B1 TRIGGER).

. Slowly turn INTENSITY control clockwise to make a trace appear. Obtain best trace definition by adjusting FOCUS control, and adjusting again ASTIG screwdriver-adjustment trimmer if necessary. Adjust sweep horizontality with ROT screwdriver-adjustment trimmer if necessary.
Adjust sweep horizontality with ROT screwdriver-adjustment trimmer if necessary.

2.3.3. - Vertical channels

. Channels A, B, C : input selectors on "DC", and on/off contacts " ON " (green lamps light).

. Select A B C mode with S2 contact on keyboard (Y MODE compartment). 3 horizontal traces appear on screen, corresponding to channels A, B and C. Vertical trace shift control balances out traces on screen (↕).

- One channel only

. Connect with a wire a signal generator (e. g output jack J601 "⊓. 5 V" on oscilloscope), to an input (e. g channel A input, sensitivity : 0.2 V/div.). Signal appears on sweep corresponding to channel A with amplitude : 2.5 div. Select channel A, used as a trigger source (B1 trigger compartment, ↑↓ contacts) for triggering the signal. Observe channel A sensitivity when vernier is turned clockwise, out of CAL position : amplitude decreases on screen.
Same phenomenon on channels B or C.

- Several independent channels are used simultaneously

. Apply to channel A and channel B two distinct signals from two generators, and select each channel sensitivity and B1 sweep TIME/DIV. Observe that when B1 trigger source (↑↓) is on A, channel A only is triggered. On B, channel B only is triggered. Simultaneous triggering of both channels is performed through ALT Y mode, and by chopping B1 trigger source on COMP (composite source).

Note : When one or more channels are not used (e.g channel C in this example), they must be switched off by turning their on/off switch upwards (OFF), to avoid jittering due to automatic sweep rate constant.

- Channels A and B are used in algebraic sum channel (A + B)

Y MODE : "A B C", "ALT"

B1 TRIGGER : AUTO, COMP

Channels A and B : 0.5 V/div.
Channel C is not used.

Apply in parallel "⊓". 5 V" signal to inputs A and B, and observe presence on screen of 1 div. amplitude pulse signal on each channel. Depress A + B, C, Y MODE : signal displayed represents A + B signal sum, and pulse amplitude is 2 div. Depress INV inversion contact on channel B : A and B inputs are used in differential mode; signal displayed represents difference A-B, amplitude : 0.

- Derived Y modes

From the 3 fundamental Y modes (selected by contact S2), many auxiliary modes are possible, by suppressing one or more channels (POWER ON switches), and on the other by using channel inversion contacts.

2.3.4. - B1 sweep triggering

Level and polarity

X MODE on B1 ; B1 TIME/DIV : 0.2 ms.

Apply sinewave signal (frequency 1 kHz, amplitude ; 2 to 5 divisions) to channel A only.

B1 TRIGGER on AUTO, A on COMP.

Observe that sweep starting point moves on sinewave signal, when B1 LEVEL control is turned. When this control is pushed or pulled, observe that starting takes place on rising slope or falling slope of signal. Signal is always triggered, whatever the position of control may be.

Normal triggering

Depress the NORM button (contact S9); action of level control is much faster; when sweep starting point reaches upper peak or lower peak of signal, sweep will disappear.

Single sweep

NORM mode. Centre level on observed signal, then suppress input signal : sweep will disappear.

Depress SINGLE button (S9) : red lamp flashes, telling single must be reset; Press RESET : red lamp will light, without flashing.

Re-apply input signal : sweep is only once triggered, and red lamp flashes. Each time RESET button is depressed, only one sweep takes place.

2.3.5. - XY mode

Select XY mode with contacts ↑↓ (X mode).

Turn INTENSITY control if necessary.

Select vertical deflection channel(s) with Y MODE contact S2, select horizontal deflection channel with contacts B1 trigger (do not use composite or line modes.

Vertical shift is performed by selected channel Y shift, and vertical shift is provided by double control ↔. ALT mode is obviously impossible in XY mode.

2.3.6. - B2 delayed sweep

B2 starts

X MODE (↑↓) on B1 + B2

B1 TIME/DIV. : 0.5 ms

B2 TIME/DIV. : 10 µs

B2 TRIGGER on STARTS (contact S16)

Apply and trigger on channel A only (0.2 V/div.) pulse from output jack J601 "⎍.5 V".

Turn INTENSITY control to brighten B2 sweep, delayed by B1. Observe that DELAY 1 control potentiometer allows starting of B2 at any point selected on B1. Any detail on B1 sweep can be framed by B2, as a rising slope of pulse for example.

Then switch X MODE on B2 : screen is swept by the spot at B2 rate (10 µs/div.), and the brightened detail, framed on B1 spreads over the screen.

B2 RETRIGGERED

Come back to X MODE : B1 + B2.

B2 TRIGGER on TRIG (S16) : trigger source lamps light.

Select source A (↑↓).

If B2 brightening does not appear on trace, turn B2 LEVEL control.

Turn DELAY 1 control and observe that brightened signal does not shift in a continuous manner, but leaps from one slope of the pulse to the other (rising or falling slopes, according to the position of B2 LEVEL button (pushed or pulled). In TRIG mode, when delay is selected on B1, B2 is not started (as in STARTS mode), but only reset : B2 will await next triggering front, from source selected by contacts ↑↓ (B2 TRIGGER).

2.3.7. - Saving of front panel functions when instrument is switched off

Cut-off power supply with R247 (POWER ON) for a short time, then switch on again; observe that the functions displayed before cut-off are saved.

2.3.8. - M1 and M2 function storages

Select on keyboard a number functions, as for example :

X MODE : B1

B1 TRIGGER : AUTO, ⎓, A

Y MODE : ALT, A B C

This selection can be stored and used again ; press contact M1.

Then change the functions on keyboard and select for example :

X MODE : B1 + B2, x10
B2 TRIGGER : STARTS, EXT
B1 TRIGGER : COMP - NORM - ⎍
Y MODE : BW 20 MHz, CHOP, A + B and C

Press RCL MEM button, then contact M1 : all selected functions are operating again; this is indicated by keyboard lamps.

Two selections can be stored in M1 and M2 memories. To get them back, press RESET MEM once before pressing one of the two contacts M1 and M2.

Note : All controls on keyboard under the screen (only them), depend on this storage.

2.3.9. - dc voltage measurements

When the instrument is switched on, green lamp V lights, indicating that digital display can be used (VOLT function). Apply voltage to measure between input jack J2301 (1.5 kV max) and ground. Measurement is automatic : change voltage and observe that the decimal point of the number displayed moves on (unit : Volt); Signs + or - before number are automatically selected.

2.3.10. - Δt differential time measurement

Press Δt - VOLT.

Lamp VOLT does not go out if required conditions are not met for Δt mode ;

1) X MODE on B1 + B2, or B2 only

2) B2 TRIGGER on STARTS

3) B1 vernier on CAL

Δt measurement is then possible : lamp V goes out, and lamps "ms", "µs" or "ns" light, indicating unit. Observe before measuring that automatic selection of a lamp depends on the position of B1 TIME/DIV rotary switch.

Measuring a phenomenon rate

X MODE : B1 + B2 (B2 STARTS)

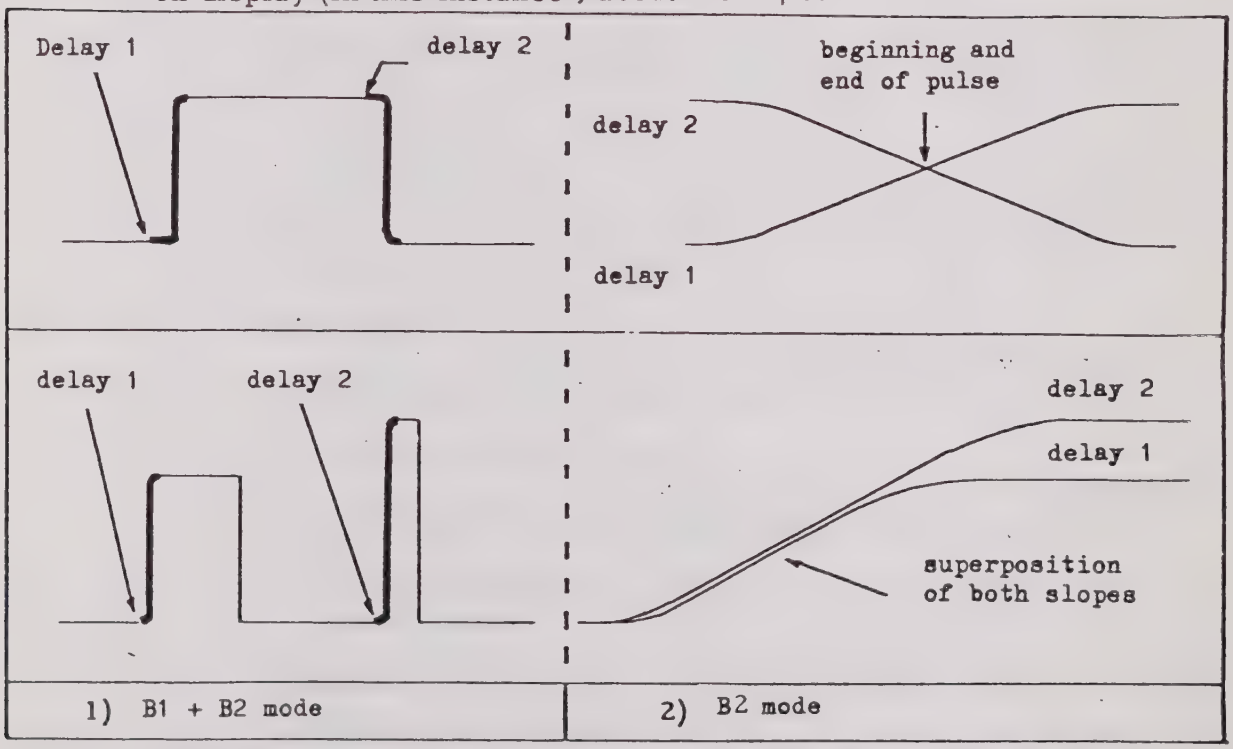
B1 TIME/DIV : 0.2 ms

B2 TIME/DIV : 2 µs

Apply and trigger pulse from output jack J601 "⎍.5 V" to channel A only (0.2 V/div.).

In Δt mode, 2 brightened traces appear on sweep, they can be respectively shifted by DELAY 1 and DELAY 2 controls. The time difference Δt between their positions is directly displayed ; polarity sign is + if brightened trace 1 comes before brightened trace 2, and is - in the opposite case.

Bring brightened trace 1 on rising slope of the pulse observed, and brightened trace 2 on its falling slope. Then read pulse rate on display (in this instance ; about + 500 µs.



Obtain best measurement precision by adjusting positioning on B1 only, after positioning of both brightened traces on B1 + B2 mode : two B2 sweeps (alternate) appear on screen. Change position of delay (s) and bring intersection point of both slopes to the correct wanted level (if slopes have opposite senses (see example above), or bring them to coincide (if slopes have same senses, in the case of time difference measurement between two pulses).

3. - DESCRIPTION OF THE CIRCUITS

3.1. - GENERAL

The oscilloscope circuits are located mainly on 3 large printed boards :

- Board Z1 (lower side, see plate P2) consisting of :
  - . low-voltage supply (fig. 2)
  - . high-voltage supply and bright-up amplifier (fig. 3), the coupling to CRT base is effected via flexible board Z9 ; post-acceleration voltage is organized on board Z8 ;
  - . logics of the choice of the functions (fig. 5), of vertical channels switching, (fig. 6), of triggering channels switching (fig. 7 and 9) ; control keyboard located on board Z6 on front panel (fig. 4) connected to Z1 via flexible circuit.
- Board Z2 (left handside, see plate P4) consisting of :
  - . 2 vertical deflection A and B channels (fig. 10b), inputs being effected on 2 similar small boards Z7
  - . the third channel C (fig. 12)
  - . external trigger channel (fig. 13), C input and external trigger input take place on 2 similar small boards Z17
  - . Y output amplifier (fig. 14), the delay line consisting of printed circuit Z4.
- Board Z3 (right handside, see plate P3) consisting of :
  - . trigger amplifiers (fig. 15 and 16)
  - . principal time base: B1 (fig. 17 and 19)
  - . delayed time base :B2 (fig. 18 and 20)
  - . horizontal switching circuits (fig. 21)

. X output amplifier (fig. 22)

. voltmeter and Δt measurement circuits (fig. 23), controls and display unit being located on board Z5 (front panel).

Interconnection of these boards is shown in fig. 1. See description of each figure to understand the working.

3.2. - LOW-VOLTAGE SUPPLY (Z1 - fig. 2)

Low-voltage supplies are delivered by power line via transformer T1. A voltage selector S202 allows selection of voltage : 125 V, 220 V or 240 V. Two fuses protect the scope : F201 (220 V, 240 V) and F202 (125 V).

The transformer has 4 secondary windings for regulated or non regulated voltages, and one heavy insulated winding ensuring CRT heating.

- + 15 V supply is given by unregulated voltage + 20 V, rectified by diodes CR10 to CR13. It is regulated by circuit U2 which controls series-pass Q5 ; voltage is adjusted by control potentiometer R12 ; resistor R11 and transistor Q28 limit the current. The regulating circuit U3 delivers supply voltage of + 5 V, from + 15 V.
- - 15 V supply is rectified by diodes CR15 to CR18 and regulated by comparator amplifier U1b which controls series pass Q7 via follower Q6.
- + 65 V supply is rectified by diodes CR6 to CR9 and regulated by comparator U1a, which controls series pass Q4 ; current is limited by resistor R6 and transistor Q3.
- + 120 V supply relied on + 65 V supply, is rectified by diodes CR1 to CR4 and stabilized by transistor Q2 which controls series-pass Q1.
- Transistor Q8 controlled by potentiometer R247 located on Z3 (fig. 22) ; it feeds the lamps of the CRT graticule.

3.3. - EHT POWER SUPPLY AND BRIGHT-UP PULSE (Z1, Z8 - fig. 3)

3.3.1. - Converter

The high voltages for the CRT are derived by means of an oscillator operating at 25 kHz, composed of Q9 in association with transformer T1, of which the two primaries are wired in the collector circuit and, for reaction, in the base circuit of Q3.

3.3.2. - Cathode voltage and regulation

Cathode voltage (- 1215 V) is given by output 7 of T1 secondary winding, via voltage doubler C24-CR23-CR24-C25. A fraction of this voltage (adjustable by R26) can be compared to a reference voltage applied to input 4, of the regulation amplifier U4, and thus to control the high voltage after control of Q9 base current via R172. The reference source comes from U4 (output 6), the E. H. T is then independant from the other supplies. The oscillator is limited in current by a voltage proportional to the current going the oscillator , taken on R30 terminals. This voltage is applied to U4 limiter input after filtering (R179, C41).

3.3.3. - Focus and astigmatism

Focus voltage is given by doubler C33 - CR30 - CR29 - C32 and by divider bridge R64-R65. It can be adjusted through R51b.

Astigmatism voltage is given by follower Q20 and can be adjusted by potentiometer R55, which reacts on focus via transistor Q17, and this constitutes an automatic adjustment of focus according to intensity.

3.3.4. - Post-acceleration

Post-acceleration voltage (about + 10 kV) is elaborated on Z8 by multiplier cells consisting of diodes CR1 to CR20, and capacitors C1 to C20.

3.3.5. - Control grid bias

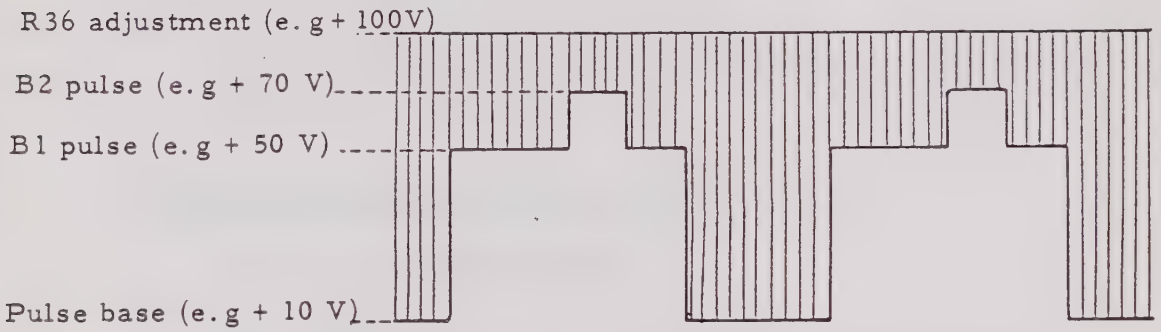
a) Principle

A carrier signal delivered by the converter is used to apply the bright-up pulse (elaborated and controlled at a level near ground) to the grid (whose voltage is about - 1250 V). This carrier first receives an amplitude modulation from the signal to send, then is staggered at E. H. T level by capacitive transmission. The pulse is then detected at this level to ensure continuous bias of the control grid (wehnelt).

b) Realization

The converter 25 kHz frequency is taken from transformer T1 secondary winding (output 6) and applied to clamping diodes CR27 - CR28 via C28 - R35 ; these diodes fix the signal high peaks (CR27) on a level adjusted by R36, and the low peaks (CR28) on the bright-up pulse coming from Q14 - Q15 sent by follower Q16.

The common point CR27-CR28 gives a modulated signal which has the following shape :



This signal is transmitted by C30, with a reference to cathode voltage via CR25, and is detected by CR26-C31-R33. Detector condenser C31 is linked to bright-up pulse to ensure a better transmission of the pulse edges to the CRT control grid.

Blanking is adjusted by potentiometer R36 according to the cut-off voltage of the tube.

3.3.6. - Bright-up amplifier

The bright-up pulse coming from the time base, the trace blanking signals coming from channels Y switch , and the possible signals applied to input J301 "External modulation" are mixed in common-base transistor Q12, and modulate its current.

A variable fraction of the signal delivered by Q12 can be taken by potentiometer R51a "INTENSITY" and applied to output amplifier Q14-Q15 via stage Q10-Q11-Q13 and follower Q52. PNP transistor Q15 allows a faster rising time of the pulse applied to it via C37.

3.4. - CONTROL KEYBOARD (Z6 - fig. 4)

The various function selecting keys located on the front panel keyboard (circuit Z6) and the lights corresponding to the selected functions are visible in this drawing (fig. 4).

Z6 is connected to Z1 by flexible circuit, and each connection is marked by means of a letter (contact push-button) or a number (lamp).

3.5. - LOGICS OF FUNCTION SELECTION (Z1 - fig. 5)

3.5.1. - 20 MHz bandwidth

The pulses coming from contact S17 are inverted by U22/6 and applied to the flip-flop U10 clock input (type D), and give alternatly on output Q level 1 or level 0. They control an analogical switch located inside U20. U20 switches (or does not) voltage V2 to feed relay K1 on one hand (on Z2, fig. 14), controlling reduction of the band to 20 MHz, and lamp "BW 20 MHz" on front panel on the other hand (Z6, fig. 4).

The data available on output Q transmitted by line M19 can be stored any time (fig. 8). This data is called back as soon as control "RCL Mem" arrives on line RM20 (level 0). The flip-flop is controlled on its inputs R and S, then transmits line RM19 data in Q.

3.5.2. - x10 expansion

This is the same device as above, which consists of contact S11 and flip-flop U14a which controls relay K1 (Z3, fig. 22) via amplifier U15/15 ; it also controls lamp "x10" (Z6, fig. 4). Storing is performed via line M9 and stored data feedback via line RM9 (RM20=0).

3.5.3. - X mode

When contact S13 is pressed, via flip-flop U5/3-U5/4, circuit U6 input U/D (10) is on level 1, and circuit U6 is an up-counter . When contact S12 is pressed, U6 is a down-counter.

When S12 or S13 are pressed, a pulse (inverted in U5/10 and delayed by R168-C93) is applied to counter U6 clock input (15), whose binary outputs Q1-Q2-Q3 are incremented in either way. These binary outputs are linked to the demultiplexer U7 which brings voltage V2 (about + 15 V) to one of the five outputs (1, 12, 13, 14, 15) according to the input binary code. The selected output ensures the selected mode operation (on Z3, fig. 21) (XY, B1, B1 + B2, B2 only, or mixed) on one hand, and corresponding lamp lighting (on Z6, fig. 4) on the other hand. Diode CR36 is used as a stop in "down-counting" position (S12) : when XY mode is reached, state 1 is imposed on input 9 of U5, and the incrementation is blocked. In the same way, diode CR38 is used as a stop in "up-counting" position, when Mixed mode is reached.

Data storing

The selected mode available in binary code on U6 outputs (Q1 - Q2 - Q3) can be transmitted at any time by lines M16, M17, M18 in order to be stored in the storing circuits by pressing contacts M1 or M2 (fig. 8). Conversely , this data can be brought back via lines RM16, RM17, RM18 linked to U6 "precounting" inputs : when control "RCL Mem" ($\overline{RM20}$ = 1) arrives in 1 of U6, outputs Q1, Q2, Q3 of the counter contain the precounting value, thus selecting the stored mode and ensuring the corresponding lamp lighting.

3.5.4. - B1 trigger filter

Flip-flops U9a and U9b are linked together so that they can deliver binary data on their outputs Q1 and Q2 by sequences of 4, when they receive clock pulses from contact S5 :

	Q1 (1)	Q2 (13)
pulse n	1	1
pulse n + 1	0	1
pulse n + 2	0	0
pulse n + 3	1	0
pulse n + 4	1	1
etc...		

This data is applied to the demultiplexer U11 which switches voltage V2 (from U13/10) to one of the 4 outputs S1, S2, S3 or S4. These outputs control the selection of B1 trigger filter (on Z3, fig. 15) on one hand (=, ∿, ⎍, ⋀⋁), and the corresponding lamp lighting (on Z6, fig. 4) on the other hand. In XY mode, voltage from U13 is zero, then no output is validated and all lamps are off.

Data Q1 - Q2 storing is achieved via lines M6 - M7. The stored data is brought back when one level 0 is transmitted to gates U12/4 and U12/10 via RM20. Both flip-flops are then controlled by their inputs S and R, outputs Q1 and Q2 reproduce the stored data transmitted via RM6-RM7.

3.5.5. - Alternate - chopped

The pulses coming from contact S1 transmitted via U35/10 and U22/10 change each time flip-flop U14b state. Flip-flop U14b controls two analogical switches (U17b) in Q and $\overline{Q}$, switching voltage + V2 to output 8 or output 11. These outputs are looped again on input gate U35/10.

Output 8 controls "Alt" mode (via Q23, fig. 6) and lamp CR1 lighting (Z6, fig. 4) at high level . It controls "chop" mode, at low level : then lamp CR2 is controlled by output 11.

Data storing is achieved via line M1, and data feedback (RM20=0) via line RM1 ; the flip-flop is then controlled by its inputs R and S.

Note : The 2 LEDs are on when contact is pressed.

3.5.6. - B2 Starts or Trig.

The device consists of contact S16, flip-flop U16 and analogical switches U17a whose outputs (looped on input gate U35/11) control lamps CR32 and CR33 lighting and B2 mode selection : starts or triggered (via 10 of J6-Z3, fig. 10).

Data storing takes place via line M8, and data feedback via line RM8 (RM20 = 0).

3.5.7. - Automatic - Normal - Single Sweep

Flip-flops U19a and b associated to gate U21/3, receiving clock pulses from contact S9, deliver a level 1 on Q1, on Q2 and on 3 of U21, in turns. These outputs control 3 analogical switches (located in U20) which switch in turns voltage + V2 (from U15) on outputs S1, S2 or S3.

. When 3 of U21 is on 1, the validated output S1 controls via 9 of J7 the automatic mode (Z3, fig. 19). In the other two instances (S1 = 0),norm. trig. mode is in operation.

. When Q2 is on 1 , the voltage transmitted by U22/2 and 8 of J7 is zero, and this controls "single sweep" mode (on Z3, fig. 19).In the other two instances (Q2 = 0),sweeping is repeated. In "single sweep" mode, contact S10 transmits via C50 and U22/2 a short positive pulse in 8 of J7, and this resets the sweep.

. Lighting of lamps Auto, Norm or Single sweep (on Z6, fig. 4) is controlled by outputs S1, S2, S3 of U20. In XY mode, no lamp is on, because voltage from U15/2 is zero.
In "single sweep" mode, a positive voltage arriving in 7 of J7 releases an oscillator consisting of U22/12-R89-C52, waiting for reset. This oscillator submits (via Q22) the lamp supply to low frequency switches, and the lamp flashes.

Data storing (Q1, Q2) is effected via lines M4, M5 and data feedback (RM20 = 0) via lines RM4, RM5 ; flip-flops U19a and b are controlled by their inputs R and S.

3.5.8. - Y mode

The device consists of contact S2 and flip-flops U23a and b associated to gate U18/11, selecting Y modes as follows (see fig. 6) :

. Q1 = 1 : A B C mode

. Q2 = 1 : A + B, C mode

. Q1 and Q2 = 0 : A, A + B, B, C mode

Lamp lighting (on Z6, fig. 4)is achieved through amplifiers U13 controlled by outputs $\overline{Q1}$, $\overline{Q2}$ and U18/11. Data storing is achieved by lines M2, M3 and data feedback (RM20 = 0) by lines RM2, RM3.

3.5.9. - Power supply - Saving of front panel and storing of M1 and M2

The voltages + V1 and + V2 which feed the logical circuits are delivered by the voltage + 15 V via diodes CR44 and CR45. One 9 V alkaline cell and transistor Q21 save front panel controls when the scope is not switched on, voltage + V1 keeping a sufficient voltage (about 2.2 V) to save the data and the flip-flops state.

3.6. - LOGICS OF Y CHANNELS SWITCHING (Z1, fig. 6)

3.6.1. - Switching programs

Memories PROM U25 and U26 and flip-flops U24a and b constitute an assembly controlling sequential chopping of Y channels through outputs Q1 to Q4 of U26. This switching can be effected according to 3 programmes, based upon the binary code applied to inputs A6 and A7, sent by lines M2-M3 (coming from Y mode selecting device, fig. 5):

M2	M3	Switching program
1	0	A, B, C
0	1	A + B, C
0	0	A, A + B, B, C

Output Q4 of U25 controls a current reduction on the output amplifier each time an algebraic sum channel is operated.

Each program can be modified by suppressing one or more channels : this suppression is controlled (from switches S2 on front panel, fig. 10) by a state 1 arriving on input A5 (channel A), A4 (channel B), A3 (channel C). Channel D is only present on Oscilloscope 5224.

3.6.2. - Switching modes

Channel switching takes place on a clock signal rythm applied to 3 and 11 of U24. In "Alt" mode, this signal coming from B1 pulse is sent via Q24, mounted as a common base (Q25 is then blocked via Q23). In "chop" mode, Q25 is released and sends to Q24 a 1 MHz signal delivered by oscillator U8/10-C58-R107. Q24 is then polarized by B1 pulse so that signal is sent only during sweep duration.

Transistors Q26 and Q27 send blanking signals to bright-up amplifier (fig. 3).

3.6.3. - Calibrator

The 1 kHz signal delivered by oscillator U8/12 is used for probe adjustment (J601, front panel) on one hand, and as a clock signal for keyboard control storing (fig. 8) on the other hand.

3.7. - LOGICS OF TRIGGERING FUNCTION (Z1 - fig. 7)

3.7.1. - Selection of B1 trigger source

Same device as X Mode (see paragraph 3.5.3). It consists of two contacts S3 - S4, up-down counter U36 and demultiplexer U37 which switches voltage + V2 to one of its six outputs according to the selected trigger source (Composite, A, B, C, External or Line). Stop diodes are CR85 for up-counting, CR54 for down-counting. Data storing in binary code is sent by lines M10 - M11 - M12, and data feedback (RM20 = 0) is performed via lines RM10 - RM11 - RM12, connected to "precounting" inputs of U36.

3.7.2. - Trigger channel switching

There are two different cases :

a) the mode is not composite (output 13 of U37, 0 V) : one of the other six outputs of U37 is validated and controls (on Z6, fig. 4) the corresponding lamp lighting. This output also controls the switching of the selected trigger source by cutting one of the following units (see fig. 9):

CR64	(channel A)
CR66	(channel B)
CR68	(channel C)
CR70	(External trigger channel)
Q30	(Line channel)

b) the mode is "composite" : (output 13 of U37 at + V2) : Because of gates U38 to U41, the trigger source switching is no more defined by U37 outputs, but sequentially controlled by U26 outputs (fig. 6), synchronized with vertical channels switching.

3.7.3. - Selection and switching of B2 trigger source

The device is the same as the one described above, and consists of two contacts S14 - S15, up-down counter U29, demultiplexer U30 and stop diodes CR52 and CR53. There is no " Line " trigger control. Output 1 of U30 controls external trigger.

On XY, B1 only, and B2 Starts modes, U30 outputs are inhibited by diodes CR56, CR57, CR58.

The logics of the gates U31 to U34 ensures trigger channel switching by turning off CR72 (channel A), CR74 (channel B), CR76 (channel C), or CR78 (external trigger channel).

3.8. - STORING OF THE CONTROLS (Z1 - fig. 8)

Circuits U43 to U47 on one hand and U48 to U52 on the other hand constitute two distincts units allowing each one to store the data defined any time on the control keyboard, and to bring back these data when necessary.

When a level 0 is applied in 9 and 10 of these circuits (G1, G2 : input control) the data on lines M1 to M19 are sent into internal flip-flops (clock signal received in 7) . In the other cases, the circuits inputs are disconnected and the flip-flops are looped on themselves and keep the data.

In the same way, when a level 0 is applied in 1 and 2 (M, N : output control) the stored data are placed on lines RM1 to RM19, whereas the 3-state outputs disconnected from the internal memories have high impedance in the other cases.

A pressing on contact "M1" (or "M2") controls storing transfer by reset of input G1.

The memory recall is controlled by the contact "RCL" (which resets input M via inverter U5/11 and flip-flop U16), then by contact "M1" (or "M2") in order to reset input N. The operating time is limited by constant R101 - C94 which defines the turning over duration of U16 (input R is kept on reset).

Summary table of storing and feedback lines :

M1	RM1	Alternate-chopped
M2-M3	RM2-RM3	Y Mode
M4-M5	RM4-RM5	Auto-Norm-Single
M6-M7	RM6-RM7	Selection of B1 trigger filter
M8	RM8	B2 Starts or Triggered
M9	RM9	x1 or x10 horizontal gain
M10-M11-M12	RM10-RM11-RM12	B1 trigger source
M13-M14-M15	RM13-RM14-RM15	B2 trigger source
M16-M17-M18	RM16-RM17-RM18	X mode
M19	RM19	20 MHz Bandwidth

Line RM20 is charged by a resistor (R176) which is 10 times lower than the other lines, and allows addressing to various circuits a "storing feedback" control, before they receive the stored data.

3.9. - TRIGGERING SWITCH AND AMPLIFIER (Z1 - fig. 9)

3.9.1. - B1 trigger

The controls from trigger logics (fig. 7) take as a trigger source of B1 the signal coming from :

. channel A, via Q33 and CR65 (CR64 is cut)

. channel B, via Q35 and CR67 (CR66 is cut)

. channel C, via Q37 and CR69 (CR68 is cut)

. ext trigger channel, via Q39 and CR71 (CR70 is cut)

. mains supply, via Q29 and CR61 (Q30 is cut)

This signal is sent by follower Q44 and amplified by Q45, then applied to B1 trigger circuit via Q46 (fig. 15).

When two channels are simultaneously switched (A + B sum), the gates U53 control Q31 conduction. The extra current is shunted in R152, and Q44 can work on the same operating point.

Transistor Q47 takes B1 trigger signal and uses it for horizontal deflection in XY Mode.

3.9.2. - B2 trigger

This device is the same as the one above, but only switches the 4 channels A, B, C, Ext. It consists of transistors Q32, Q34, Q36, Q38 and diodes CR73, CR75, CR77, CR79 controlled by CR72, CR74, CR76, CR78 respectively. The output stage consists of Q48, Q49, Q50. The derivation of current in algebraic sum is controlled by Q51, via gates U54.

3.10. - PREAMPLIFIERS

3.10.1. - Channels A and B preamplifiers (Z2 - fig. 10/b)

Only one channel is visible in figure 10b, channels A and B being similar. The two preamplifiers are located on the same large board Z2 (with similar printed markers), but there are two small input circuits Z7.

- Input coupling (Z7)

The signal applied to input jack J100 is sent by switch S10 either directly (position $\overline{\sim}$), or through capacitor C2 (position $\sim$). The attenuator input is disconnected from J100 and grounded in position 0.

- Low and high impedance attenuators

The signal first receive a 1/1, 1/10, or 1/100 high impedance attenuation according to S1a contact position of switch "V/div."

The adapter stage consisting of field effect transistor Q1 and circuit U1, is a very high impedance input and very low impedance output follower. Control potentiometer R15 suppresses any potential difference between input and output. This stage is followed by a 1/1, 1/2, 1/4 or 1/10 low impedance attenuator according to the position of S1b switch. It operates along with high impedance attenuator so that the channel vertical deflection factor can be defined, for positions 5 mV/div to 5 V/div.

Gain vernier R26 with an operating range set by R25 is located on this attenuator output. When the vernier is not in anti-clockwise position (Cal), contact S4 switches on lamp CR4 "Uncal".

- Amplification stages

Circuit U2 and follower transistors Q2 and Q3 form a differential stage whose gain can be multiplied by 2.5 when S1 b contact 5 is shut, thus giving "2 mV/div" sensitivity.

Selector S3 crosses the circuits, the channel signal is thus inverted or not before being applied to stage Q6 - Q7. Shift control is performed by potentiometer R26b taking place on these transistor collectors through amplifiers U3a and U3b, connected as a follower and as an inverter, respectively.

On this stage output also arrives via J11 the channel switching control : a level 0 shunts the signal in CR5-CR6 (diodes CR7 and CR8 are then cut) ; a level 1 cuts off CR5-CR6 and the signal is sent to the output amplifier common to the 2 channels via CR7-CR8 (fig. 14).

- Trigger signal

The trigger signal internal to the channel is taken by transistors Q4-Q5 to be sent to the trigger amplifier (fig. 9). It must be noted that this is performed before channel inversion , and before trace shift, so that these controls do not act on trigger.

3.10.2. - Channel C preamplifier (Z2 - fig. 12)

This preamplifier is very similar to channels A and B preamplifiers (fig. 10b), except for sensitivity switch S11 located on input circuit Z17 with only two positions 0.1 V and 1 V; resistors RR1 between circuits U1 and U2, used as low impedance attenuator with only one ratio : 1/2 ; coupling between followers Q2 - Q3 and stage Q6 - Q7 does not have a channel inverter.

3.10.3. - External trigger channel (Z2 - fig. 13)

This channel is very similar to channel C (fig. 12) but does not have the stage Q6-Q7 and the shift control circuit U3 as it is not used for vertical deflection.

3.11. - OUTPUT AMPLIFIER Y (Z2 - fig. 14)

The signal coming from the preamplifier is applied to a common stage consisting of transistors Q11-Q12 with a common base and followers Q13-Q14 (and this whatever its origin channel).

When only one channel is switched, the input current comes from the preamplifier (via CR7 and CR8) on one hand, and from voltage + 15 V (via R83-CR11 and R84-CR15) on the other hand. When these two channels are simultaneously switched (algebraic sum) the current coming from the preamplifier is doubled. In order to balance this increment and to keep Q11 and Q12 on the same operating point, diodes CR11 and CR15 are disconnected by a level 0 (in 6 of J11), replaced by diodes CR12 and CR14.

The signal is transmitted by a delay line (Z4 PCB) to a "dummy-cascode" amplifier consisting of a differential lower stage : Q27- Q28 , and a reverse feedback upper stage : Q29 - Q30. Potentiometer R97 adjusts the stage gain. Resistor NTC RT3 associated to variable capacity diodes CR16-CR17 ensures temperature correction.

This amplifier is followed by a differential stage Q17-Q18 and by the output cascode type stage Q23-Q24-Q25-Q26 delivering vertical deflection signals to the CRT.

3.12. - B1 TRIGGERING (Z3 - fig. 15)

3.12.1. - Trigger filters

B1 triggering signal arrives in 7 of J6. Transistors Q1, Q2 and Q3 behave as switches in order to introduce time constants, to filter a number of frequencies.

In $\overline{\sim}$ mode, the capacitors C3, C4 and C5 are shorted by Q2, and the signal is directly sent to follower Q4.

In $\sqcap$ mode, the coupling is also continuous but the integrating capacitor C2 is grounded through Q1.

In ∿ mode, capacitor C3 only is shorted (by Q3) and the coupling takes place through C4 and C5.

In ⎍ mode, the 3 switches are open, capacitor C3 is switched in the coupling.

3.12.2. - Signal shaping and polarity

The signal is shaped by 3 successive differential amplifiers located in case U17. A variable voltage is applied to U17 a second input, adjusted by potentiometer "Level" in order to select the trigger operating level.

On U17c output, selector S1501 is controlled by the level potentiometer axle, selecting triggering on the trigger signal rising or falling slopes.

3.12.3. - Automatic or Normal "LEVEL" operation

The level operating range, by R26, is defined by the output voltages of the two followers U18a and U18b.

In "Norm" mode (9 of J7, state 0) Q5 and Q54 are conducting: U18a delivers a voltage about -0.9 V, and U18b delivers a voltage about -4.2 V.

In "Auto" mode, (9 of J7, state 1) Q5 and Q54 are turned off. The voltages delivered by U18a and U18b are not steady. They continuously follow the trigger signal positive peak and negative peak value respectively. This is performed by storing capacitor C9 charged at the signal positive peaks by U16a-Q6 and by capacitor C8 charged at the negative peaks by U16b-Q7. Triggering is totally automatic since the level stroke is always limited to the signal peak to peak amplitudes.

Level potentiometer R26 is used thanks to transistors Q55-Q56 to refine HF signal triggering, by acting slightly on the sweep hold-off duration.

3.13. - B2 TRIGGERING (Z3 - fig. 16)

Signal shaping and polarity choice are similar to B1 triggering ones ; they are performed by amplifiers U19a, b and c and by selector S1601. The circuit does not possess any filter or automatic level device.

3.14. - B1 TIME BASE (Z3 - fig. 19 and 17)

3.14.1. - Sawtooth generator

The sawtooth signal is delivered by a Miller integrator consisting of FET Q20, amplifier Q22 (charged by complementary transistor Q21) and units RC which can be switched by selector S1a "Time/div B1": array RR5, R55, R56 and capacitors C20 to C25 (fig. 17).

The gradient is due to the constant current charge of capacitor C through resistor R which has a set voltage, from + 15 V, through the follower circuit U20a (fig. 17). This voltage can be adjusted according to S1a positions by potentiometers R46, R47, R48. This gradient slope (sweep rate) depends on the selected constant RC. It can also be modified by variable B1 R62 which gives R (via U20b) a variable fraction of the voltage. A contact controls lighting of lamp CR6 "B1 Uncal".

3.14.2. - Sweep control

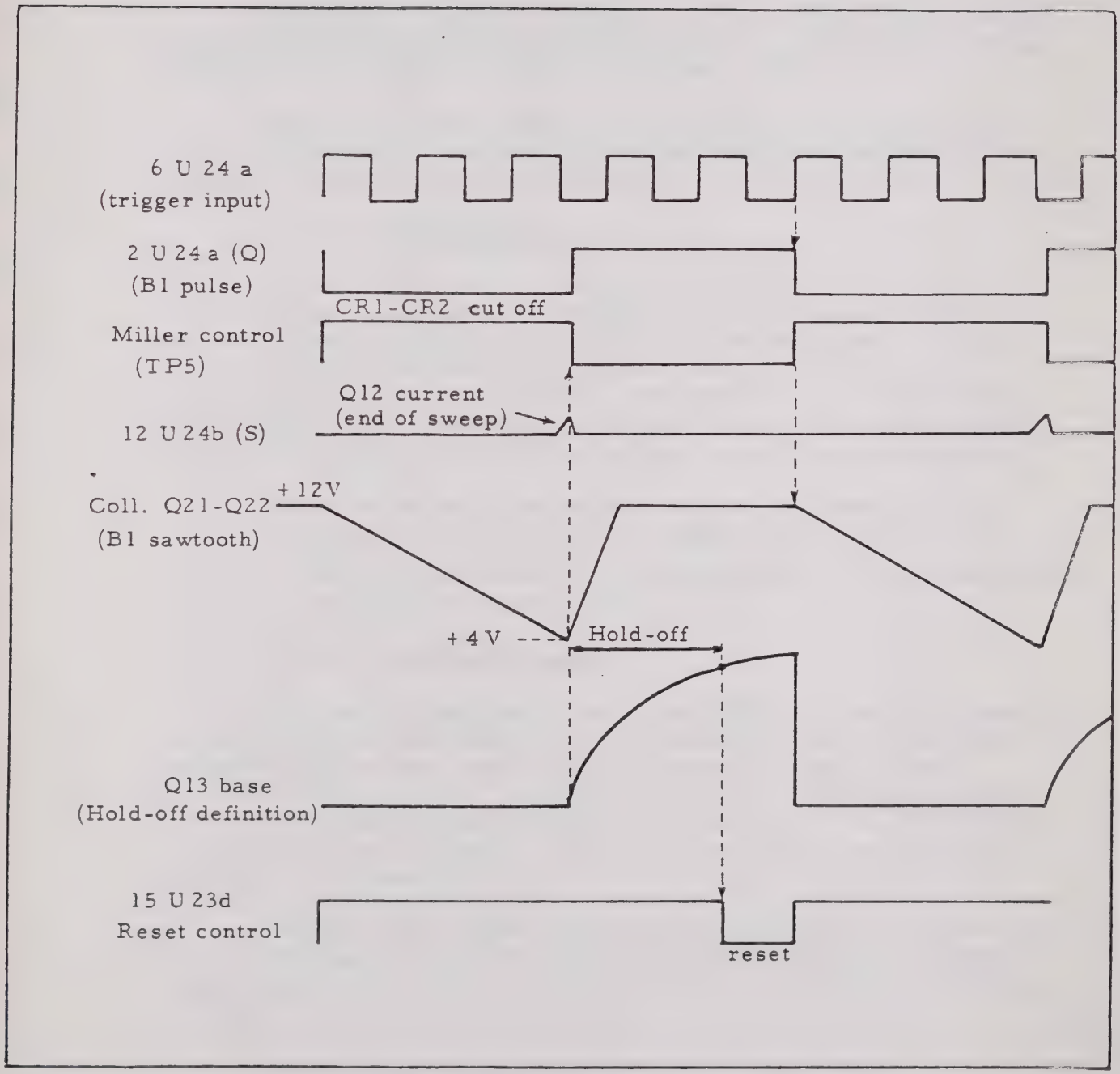
Sweep takes place when bistable circuit U24a is in low state (Q = 0). This control is sent either to its input 4 (R = 1) (free-running mode), or to its clock input 6 (trigger signal) (normal mode).

- Sweep start

U24a is on state 0 and makes Q18 conduct in R109, thus turning off diodes CR11 - CR12 : the Miller amplifier charges capacitor C and delivers in B a decreasing voltage.

- End of sweep

When this voltage reaches + 4 V, Q12 conducts : U24 b controlled by its input S turns over in high state (Q = 1) and puts U24a in state 1 ; Q18 turns off and releases diodes CR11-CR12. The Miller capacitor is discharged, this is the flyback of the sawtooth.



"NORM-TRIG" B1 sweep

- Return to start-point voltage

Differential amplifier U25 compares the sawtooth signal received on its input 6 to a steady start-point voltage + 12 V (established by bridge R115 - R116 and applied to input 9 via follower U26/7).

When the sawtooth signal reaches this value at the end of flyback, transistor Q19 conducts in R109 and thus loops again the Miller integrator, subjecting its output voltage to the start-point value.

3.14.3. - Hold-off circuit

At the end of sweep, U24a turns over (Q = 1), and also controls reset trigger U23d (via Q18, Q15, Q16, Q14 and Q13). This control is sent with some delay due to a hold-off capacitor C' (on Q13 base). This capacitor is selected by multiplexer U21 (see fig. 17) according to the position of selector "Time/div. B1". It is associated to R99, R129 and to potentiometer R62 a which adjusts the hold-off time. At the end of this hold-off, U23d turns over (state 0) and this leads to :

. "Norm" mode, resetting (in 9) of flip-flop U24a which will take up a state (Q = 0) when a trigger signal arrives in 6.

. "Auto" mode, instant flip-flop turning over of U24a is controlled via U23c, by input 4 (R = 1).

3.14.4. - Automatic trigger

Automatic triggering is controlled by U23a, Q9 and U23b, and consists in opening gate U23c to start the sawtooth when the end of the hold-off signal arrives, from U23d : the sweep free-runs. This is performed when 9 of J7 is on level 1, provided trigger signals in D are not present or have a frequency lower than 25 Hz. In this case, capacitor C39 remains charged with a negative voltage, and U23b (state 1) keeps gate U23c open.

If trigger pulse signals arrive in D, monostable U23a discharges C39 (via Q9), and the low level delivered by U23b brings back "normal" triggering mode (the level control is modified, as mentioned in paragraph 3.12.3).

Lamp CR9 indicates the presence of trigger signals.

3.14.5. - Single sweep

Transistor Q67 is cut off by a level 0 in 8 of J7. Its collector voltage is lowered in such a way that after sweep flyback trigger U23d cannot turn again, even when capacitor C' (hold-off) is discharged : the sweep is not reset.

When "RESET" is pressed, (fig. 5) a short positive pulse is applied via Q67, making U23d turn over and resetting the sweep (only for once).

When U23d is waiting for reset, its output 15 (high state) controls via Q17 the flashing of lamp "SINGLE SWP" (Z1 - fig. 5).

3.15. - B2 TIME BASE (Z3 - fig. 20 and 18)

3.15.1. - Delay system

Differential amplifier U27a controls B2 sweep delay compared with B1 sweep start. It is only turned on (via diode CR13) in B2, B1 + B2, or Mixed modes.

It compares B1 sawtooth applied to its input 9 to a d.c. voltage applied to the other input 6. This voltage is passed to the dual follower U14 (fig. 23) and can be adjusted either by "DELAY 1" potentiometer, or by both "DELAY 1 and DELAY 2" potentiometers, alternately on each sweep. Switching is ensured by analogical switch U30a.

Amplifier U27 delivers a negative edge, when both inputs voltages coincide. This delay signal is shaped in Q23 and U28a, and then resets or triggers B2 sweep.

3.15.2. - Sawtooth generator

Like for B1 time base, a Miller integrator consisting of FET Q29, amplifier Q31 charged by Q30, RC units switched by S1b , and multiplexer U22 (fig. 18), constitutes the generator.

Miller voltage is fixed by followers U34a and b (fig. 18) and it can vary thanks to vernier B2 (R76).

3.15.3. - Sweep control

This control is performed by output $\overline{Q} = 0$ of flip-flop U29a which turns off diodes CR17 and CR18 via Q27.

The flip-flop turning over again at the end of sweep is controlled by Q24 current. A second flip-flop U29b ensures blanking of the trace of B2 sweep by output Q = 0, in "Mixed" mode (see fig. 21). U28d forces the return of B2 by the return of B1.

3.15.4. - B2 sweep starts or retriggered

In "STARTS" mode, gate U28c (validated by input 12) receives the delay signal via C60 and will change U29a state through its input S (5). This input is held at 1 by Q40.

In "TRIG" mode, flip-flop is set in D (7) via U28b. It will turn over only when trigger signal arrives on its clock input (6).

3.15.5. - B2 start-point voltage

Locking of the Miller integrator output to the start-point voltage is performed by differential amplifier Q25-Q26 supplied by Q28. This voltage, applied to Q25 base is fixed (+ 12 V), except in "Mixed" mode, where it follows B1 sawtooth ; analogical switch U30b, controlled by Q57, ensures switching . As long as B2 is not triggered, Miller integrator follows the back-up voltage, and output (TP11) reproduces B1 sawtooth.

When B2 starts, locking to B1 sawtooth stops, and the gradient slope is defined by B2 RC units.

3.16. - X MODE SWITCHING (Z3 - fig. 21)

Gates U33, according to X mode selection from Z1 (fig. 5), switch the correct channel towards horizontal amplifier, and at the same time control the amplifier brighting up.

Signal switching towards horizontal amplifier is controlled by switches Q33, Q34 or Q35 open or shut via diodes CR19, CR22 or CR23.

Bright up pulse mixing is realized in circuit U32 operating as controlled current source : amplifiers a, b, c, d are turned off or on through their inputs 6, 5, 12, and 11. They are controlled (common base) by signal received on outputs 3, 2, 15 and 14. Their currents are added on common power supply U32 (pin 1), and the resulting current controls bright-up amplifier.

B1 Mode : Q33 transmits B1 sawtooth and U32a only operates and transmits B1 bright up pulse.

B2 Mode : Q34 transmits B2 sawtooth and U32b transmits B2 bright-up pulse.

B1 + B2 Mode : B1 sawtooth is transmitted by Q33. B1 pulse is transmitted by U32a, but during B2 sweep, U32c turns on and B2 pulse is added to B1 pulse for CRT trace intensifying.

Mixed Mode : Q34 first transmits B1 sawtooth (backing up B2), and bright-up pulse is controlled by U32a current. When delay is reached, Q34 transmits B2 sawtooth, and brightness is increased by U32c current. Transistor Q32 controls blanking at the end of B2 sweep.

XY Mode : Q35 transmits X signal (from B1 trigger amplifier) to horizontal amplifier and U32d gives the current needed for XY brighting up.

Function of transistors Q58 to Q61

Q61 loaded by Q60 transmits to 3 of J8 a negative pulse corresponding to B1 sweep. The level of this signal is defined by Q60 bias, controlled by Q58. It has a different value according to its position, "ALT" or "CHOP". In the first case, switching signal is inhibited during sweep hold-off (see fig. 6). In the other case, it controls channel alternation. This control disappears every five sweeps thanks to a signal arriving on Q60 base (via R316) so that, in " Δt" mode, the two intensified signals appear on each channel whatever the number of channels may be.

In XY Mode, transistor Q59 controls permanent saturation of Q61, and any channel alternation is inhibited.

3.17. - HORIZONTAL AMPLIFIER (Z3 - fig. 22)

The feedback differential stage Q36-Q37 receives, according to the selected mode, B1 sawtooth, B2 sawtooth or XY signal.

The voltage coming from coarse and fine horizontal trace shift control potentiometer is superposed to this signal (R198 a and b).

A second stage Q38 - Q39 receives a constant current from Q42. Its gain can be multiplied by 10 when relay K1 is closed.

The output differential amplifier consists of Q43 controlling push-pull Q46-Q47, and of Q45 which controls Q48-Q49. It sends to the CRT horizontal deflection signals via shift Zener diodes CR25 and CR26.

3.18. - Δt AND VOLTMETER FUNCTIONS (Z3 - Z5 - fig. 23)

3.18.1. - Principle of the measurement

An analogical/digital converter receives a d.c. voltage which represents :

. in "Volt" mode, the input voltage to measure

. in "Δt" mode, the voltage interval defined by potentiometers "Delay 1" and "Delay 2".

The conversion consists in bringing back the balance suppressed by the input voltage, by integrating successive elementary electric charges. These charges are delivered by clock pulses. A counter records the number of pulses needed for restoring the balance : this number (on the converter output) represents the voltage applied to the input.

At the end of conversion, and before reset for another series of measurements, counter content is stored to be passed by multiplexed outputs, to BCD/7-segment decoder for display. The displayed number indicates directly the input voltage value (in "Volt" measurement) or the time interval ("Δt" measurement).

3.18.2. - "VOLT" or "Δt" selection

Bistable circuit U6a controlled by contact S1 (Z5) selects "Volt" mode (Q = 1) by turning on switch U10/5, or "Δt" mode ($\overline{Q}$ = 1) by turning on U10/13.

Q53 saturates and forces the "Volt" mode in the following cases :

. Variable B1 uncalibrated (CR6 cathode, fig. 17)

. B1, Mixed or XY modes (3 J6)

. B2 not "START" (3 J6)

. Single sweep mode (10 J7)

3.18.3. - Analogical/digital converter

The voltage to convert is applied in 3 of converter U4 (Z3).

This converter sensitivity is defined by a reference d.c voltage applied in 2. This sensitivity can be 2 V or 200 mV according to the state of the analogical switches U12/5 and U12/6, controlled in 12 and 13 of U7 by range automatic search circuit.

On 2V sensivity , the reference can be adjusted by R288, and constant R290-C112 defines the integration rate. On 200 mV sensivity the reference can be adjusted by R286, and R290 is shunted by R291.

The converter generates its clock pulses, whose frequency is defined by resistor R292 (pin 10, 11).

The counting result is available on BCD code on multiplexed outputs Q0 to Q3 (20, 21, 22, 23).

3.18.4. - Range automatic search

The measurement is recurrent, so at the end of each counting cycle, converter U4 delivers on output 14 a positive pulse (level 1) of about 5 µs. During this pulse duration, outputs Q0 and Q3 of the converter indicate whether the counter content is normal, considering excess, (> 1999), or unsufficient sensitivity (< 180) :

Q0 { 0 normal range
   { 1 excess or sub-range

Q3 $\begin{cases} 0 \\ 1 \end{cases}$ $\begin{cases} \text{excess} \\ \text{sub-range} \end{cases}$

This data will allow after each counting cycle, to switch automatically the input attenuators and the converter sensitivity, until the correct range is found.

The search unit consists of flip-flops U5a, U5b and U6b (receiving on their clocks the differentiated pulse from R293-C114), and of gates U7. Automatic control on output is due to signals a' and b' (in 1 and 13 of U5).

Digital control

Range 1 (high sensitivity) :	a' = 0	b' = 0
Range 2 :	a' = 1	b' = 0
Range 3 :	a' = 1	b' = 1
Range 4 (low sensitivity):	a' = 0	b' = 1

In excess : at each counting cycle, the next range is switched until the correct range is found.

In sub-range : There is first switching on the best sensitivity range ; then the process goes back to an excess case.

3.18.5. - "VOLT" Mode input

Input voltage (J2301) is applied to x10, x100 or x1000 attenuator whose high branch is R11. Case U10 analogical switches are controlled on inputs 6 and 12 by automatic range circuit (a' and b'), and ground the attenuator low branches which can be:

R273	(1/10 attenuation)
R273/ /R274-275	(1/100 attenuation)
R273/ /R274-275/ /R276-277	(1/1000 attenuation)

The attenuated voltage is passed to input 3 of converter U4 via U10/3.

controls a'	controls b'	attenuation	Converter sensitivity	RANGE
0	0	1/10	200 mV	1.999 V
1	0	1/10	2 V	19.99 V
1	1	1/100	2 V	199.9 V
0	1	1/1000	2 V	1999 V

3.18.6. - "Δt" Mode

Delay distribution

Followers U14a and b deliver two voltages (VR1 and VR2) defined by potentiometers "Delay 1" and "Delay 2" respectively. In "Δt" mode, flip-flop U8b receives on its clock input B1 sweep pulses (via Q50), and alternately switches VR1 and VR2 at each sweep towards B2 delay circuit (via analogical switches U30a, fig. 20). In "Volt" mode, Q2 holds-off the flip-flop which permanently switches VR1.

Flip-flops U9a, U9b and U8a constitute a 1/5 divider inhibiting (via Q60, fig. 21) the alternation control of the channels every 5 sweeps, in order to make sure two intensified signals (delays 1 and 2) appear on each channel, whatever the number of channels may be.

Input circuit

Voltages VR1 and VR2 are also transmitted to the comparator U13 via a differential stage (U15 and Q62 to Q66).

Comparator U13 delivers on output a dc voltage proportional to algebraic subtraction "VR1 - VR2". This voltage is applied to a x1, x2 or x4 attenuator, whose high branch is R268. Two analogical switches of case U12 are controlled on inputs 12 and 13, by switch "TIME/Div." of B1 (positions 2, 1, 5) and switch to ground the low branches of the attenuator, which can be :

R269 (positions 1 : 1/2 attenuation)

R270 (positions 5 : 1/4 attenuation)

On positions 2, the switches are held-off, there is no attenuation.

Voltage is then passed via U10/1 to converter U4 input

Note : 1/10, 1/100, 1/1000 ratios of switch "TIME/Div." are taken into consideration during display, by displacement of the decimal point and choice of unit (ms, µs, ns).

3.18.7. - Display

The converter multiplexed outputs pass the BCD code counting content to circuit U6 which is a 7-segment/BCD decoder.

The 4 digits U1, U2, U3, U4 are turned on in turns by controls from outputs 16, 17, 18, 19 of U4 (via buffer

Segments receive data from the decoder U6 output BUS. The vertical segment of sign + is controlled via Q3 by U4 output 22.

Decimal point positioning and choice of unit lamp are controlled by a PROM circuit : U1 - U1 is controlled on its address inputs :

. by choice of "Volt" or "Δt" (A7)
. by display multiplexing control (A0, A1)
. by controls a' b' of range automatic search (A2, A3)
. by positions of selector "TIME/Div" (A4, A5, A6).

4. - MAINTENANCE

WARNING : VERY HIGH VOLTAGES ARE PRESENT IN THIS INSTRUMENT. THEY CAN CAUSE INJURY OR EVEN DEATH. TAKE EXTREME CARE WHEN WORKING WITH THE COVERS REMOVED.

This chapter provides information to help in setting up the instrument and in fault-finding, should this become necessary.

Instrument calibration should be checked after about every 1000 hours of operation.

4.1. - FRONT PANEL UPKEEP

The front panel may become dirty with use. To clean it, unscrew all the control knobs and wash the screen-printed panels with soapy water. DO NOT USE ANY KIND OF SOLVENT, to avoid possible damage to the paint and silk screened legends.

4.2. - ACCESS TO INTERNAL COMPONENTS

4.2.1. - Removing the covers and the handle

The upper cover is removed by unscrewing the four screws on the sides. The lower cover is fixed to the chassis by means of five screws which must be removed.

The handle is fixed to the lower cover ; the two handle pivots are fixed on by two hexagonal-head screws.

4.2.2. - Removing sub-unit Y (board Z2, left handside)

- Remove all control knobs located on front panel left handside, unscrew the front panel 7 screws and ground terminal J202 : the silk-printed panel can be removed.
- Disconnect from board the black case containing the 4 "synchro"input wires, as well as ground wire, connecting the board to a shield on the side.

- Disconnect the 5-pin strip (connector J10) and dual 2x5 pin strip (J11) connecting Z2 to board Z1.
- Unscrew the 9 board fixing screws (marked ① on P4 plate) and 2 screws on inside chassis side, behind board (marked ② on P4).
- Disconnect with extreme care pins 13 and 14 connecting flexible board Z9 to the CRT, lift up the board and do not let it fall back in order to prevent damaging the flexible circuit.
- Board Z2 is removed by pulling it towards the rear. Do not lose the small plates encircling the levers "⏦0⏦".

Note : The delay line (board Z4) is fixed to board Z2. Unscrew the 5 fixing screws to remove it, and disconnect pins 9, 10, 11, 12.

4.2.3. - Removing sub-unit X (board Z3, right handside)

- Unscrew all control knobs located on front panel right handside, and unscrew the 5 panel fixing screws (4 cross-headed screws, 1 round-head screw).
- Behind front panel and board Z5, unscrew the ground terminal fixing nut (J2302) and unsolder resistor 9 MΩ (blue) on "Voltmeter" input.

Note : Do not unscrew the selector switch "Time" axle screws, because the adjustment is very precise.

- Disconnect output green wire " ⎍. 5 V" (J601) and both red wires (rear outputs ⎍ B1 and B2), as well as Z1 coupling black wire.
- Disconnect behind ON/OFF potentiometer, the white jack connecting the mains to the instrument.

- Disconnect all coupling strips to board Z1 : J6 (2 x 5 pins), J7 (2 x 5 pins), J8 (2 x 5 pins) and J9 (5 pins).
- Disconnect with extreme care pins X1 and X2 of flexible circuit Z9 to the CRT, by lifting up the board and preventing it fall back to protect the flexible circuit.
- Board Z3 can be removed by pulling it towards the rear.

4.2.4. - Removing Power supply sub-unit (board Z1, lower side)

Board Z1 can only be removed along with rear panel.

- Remove from front panel knobs "INTENSITY" and "FOCUS".
- Unscrew behind front panel, both cross-headed screws fixing board Z6 (keyboard) and remove it towards the rear.
- Disconnect both black ground wires connecting Z1 to Z2 and Z3.
- Unscrew the 4 board fixing screws (marked ① on P2) and the little column (marked ②), and unscrew the screw marked ③ .
- Unscrew the ground terminal coupling Z1 to the shield (Z2 side).
- Disconnect the black case containing the 4 "synchro" coaxial input wires, and the green wire connecting to jack "⎍. 5 V" (J601, front panel).
- Disconnect (Z3 handside) strips J6 (2 x 5 pins), J7 (2 x 5 pins), J8 (2 x 5 pins) and J9 (5 pins), and (Z2 handside) strips J10 (5 pins), and J11 (2 x 5 pins).
- Disconnect behind ON/OFF potentiometer the white jack connecting the instrument to the mains.
- Disconnect the red wires connecting Z3 to the jacks "⎍ B1 and B2" on rear panel.
- Unscrew both mill-headed screws (on upper part of rear panel) and the 4 screws on each side of the heat sink.
- Disconnect with great care flexible circuit Z9 from connectors J12 and J13.
  The unit Z1 + rear panel can be removed by pulling it towards the rear.

4.2.5. - Removing the CRT

- Remove the protection plate marked " THT' (upper side)
- Disconnect the CRT base socket (flexible circuit Z9) and the wires connecting the CRT.
- Remove from front panel the screen black mask (1 screw) and the blue neutral.
- Unsolder both wires at the graticule lighting strip ends (upper side, near front panel). Unscrew the screw fixing the square cross bar to the chassis (from left handside).
- At the rear, near base socket, unscrew two screws connecting the CRT shield to the chassis.
- Remove the CRT by pulling it up towards the rear.
- Disconnect the post-acceleration anode.

4.3. - EQUIPMENT REQUIRED FOR FAULT-FINDING AND SETTING UP

Instrument	Minimum performance
- Test oscilloscope with probe	100-MHz bandwidth
- Digital voltmeter	2 V to 2000 V. Accuracy : 10^{-3}
- Amplitude-calibrated square wave generator	amplitude : 10 mV to 100 V accuracy : 1%, frequency : about 1 kHz
- Square and sine wave generator	amplitude : 0 to 5 V frequency : 5 Hz to 1 MHz
- Time-mark signal generator (GET 635)	Period : 1 s to 10 ms
- Pulse generator (GI 634 B)	rise time : $\leq$ 1 ns frequency : 100 Hz to 1 MHz
- Pulse generator	amplitude : 500 mV to 20 V rise time : 10 to 15 µs
- Very steady output level frequency generator	150 MHz
- Calibrated dc voltages standard	Accuracy : 10^{-3}

4.4. - SETTING-UP

The operations are described in the logical and functional order in which they should be carried out.

4.4.1. - Power supply (Z1, P2)

- Adjust voltage + 15 V with R12 (fig. 2)
- Check voltages + 5 V, - 5 V, + 65 V, + 120 V (± 2%) and non regulated voltage + 20 V.
- Adjust CRT cathode voltage - 1215 V with R26 (fig. 3)
- Check on J8 the presence of non regulated voltage - 75 V.
- Check regulation of all rails with ± 10% mains voltage.

4.4.2. - CRT (Z1 - fig. 3 - P2)

- Brightness

  INTENSITY control potentiometer fully clockwise. Adjust R36 to make start point (without sweep) just visible.

- Trace rotation

  Set trace horizontal with R67 (TRACE ROT, front panel).

- Focus and astigmatism

  Adjust "FOCUS" control together with "ASTIG" control on front panel to give best trace definition.

- Geometry

  Apply a sine wave with vertical sweep covering screen height and horizontal scaling of 1 cycle/division. Adjust R53 for best sine waveform.

4.4.3. - Time base (Z3 - P3)

. Adjust sweep length at 11 cm by R214 (fig. 22)

- B1 sweep rates (fig. 17)

. B1 mode : With vernier in CAL position. Connect time mark generator to a Y input and set up the various sweep rates according to the following table :

B1 TIME/DIV	Adjust
10 µs/div. 0.1 µs/div.	R48 C25 } successive touch-ups
1 ms/div.	R47
0.1 s/div.	R46

. R129 (fig. 19) adjusts hold-off for particular use (data processing).

- B2 sweep rates (fig. 18)

. B2 mode : with vernier in CAL position ; as for B1, according to the following table :

B2 TIME/DIV	Adjust
10 µs/div. 0.1 µs/div.	R63 C37 } successive touch-ups
10 ms/div.	R64

- x10 horizontal gain

. B1 mode, 10 µs/div., generator on 1 µs
Adjust R216 (fig. 22) to obtain one pulse per division.

. on 50 ns/div. (x10) adjust linearity sweep by R336, C93 and C99 (fig. 22).

4.4.4. - Vertical deflection (Z2 - P4)

Balance of channels A and B (fig. 10)

On each channel :

. Adjust R15 (front panel "BAL") to balance passage from 20 mV/div. to 10 mV/div. and to 5 mV/div. (suppress any trace vertical shift).

. Adjust R38 to balance passage from 5 mV/div. to 2 mV/div.

. Adjust R30 to balance passage from "Norm" to "invert".

Gain on channels A and B (fig. 10 and 14)

. Apply calibrated 50 mV square wave to each channel (10 mV/div.), and adjust R25 (fig. 10) fully clockwise to obtain a maximum gain. Observe on which channel there is a minimum deflection and adjust R97 (fig. 14) to obtain on this channel a 5-division deflection ± 3%.

. Adjust gain on each channel A and B at 5 divisions by R25.

. Check other amplitude/div (± 5% on 2 mV ; ± 3% on all the other amplitude/div)

- Channel C (fig. 12)

. Adjust R30 (channel C) half-way.

. Balance vernier (channel C) by R15 (front panel bal).

. Adjust gain on 0.1 V/div. by R25.

- Check the proper working of the channel logics.

Pulse response (channels A, B, C)

. Adjust Y plates average potential at + 30 V (trace is centered)

. Connect fast-rise pulse generator (GI 634B Schlumberger with 6 dB coaxial attenuator, frequency : 1 MHz, amplitude : about 5 divisions), with 50 Ω coaxial termination, and adjust the following constants to obtain on the screen a pulse giving the best pulse top :

On output amplifier, common to the 3 channels (fig. 14) :

R132 - C47

C38
C63 (algebraic sum)

On each channel (fig. 10)

R55 - C23
C25

Note : The variations can represent about ± 5% of pulse amplitude on the first fifty ns and ± 2% after (add ± 2% when channel is inverted)

. Check bandwidth : 100 MHz on 10 mV/div.
50 MHz on 2 mV/div.

Attenuator frequency correction

Connect on input a pulse generator (duration : 10 to 15 µs) and adjust to obtain a correct pulse on the screen, according to the table :

on 0.1 V/div. : C2 (1/10 attenuation)
1 V/div. : C4 (1/100 attenuation)

Note : for channel C, C4 is located on input board Z17.

Input capacity (channels A and B)

On each channel, adjust oscilloscope probe by applying a square sine wave through it on position 0.1 V/div. Change to a direct position (10 mV/div.) and adjust input capacitor C8 (fig. 10). Correct again attenuators if necessary.

Centring of trigger channels

. In trigger A, adjust R47 (fig. 10) to obtain voltage + 2.1 V between R30 (Z3 - fig. 15 - P3) and ground.

. Switch to XY mode, "comp" trigger , the 3 channels are operating. Adjust controls R47 of channels B and C to align these channels both dots vertically compared to channel A dots.

. In "Ext" trigger, adjust R15 (BAL, Ext. Trigger, front panel) to suppress the voltage in relation to the ground in 9 of U2 (Z2-P4-fig. 13). Adjust R47 (Ext. Trigger channel) to align two light dots vertically above the dots previously set on channels A, B and C.

4.4.5. - XY mode

- In XY mode, apply signal ⊓. 5 V (J601) and adjust horizontal gain with R321 (Z3 - fig. 21). Check this gain on each channel (accuracy : ± 5%).
- Check phase-shift at 1 MHz : < 3°.

4.4.6. - Voltmeter (Z3 - fig. 23 - P3)

Note : The following adjustments must be performed with protection cover.

Apply on voltmeter input calibrated standard voltages, and obtain the correct display of input voltage according to the following table:

Applied voltage	Adjustment
19.99 V	R288
1.999 V	R286
199.9 V	R274
1000 V	R276

4.4.7. - Δt differential time measurement (Z3 - fig. 23- P3)

In B1 + B2 (B2 starts)mode - B1 : 10 µs/div. - B2 0.1 µs/div.

. Apply time calibrated generator signal (10 µs)

Switch to Δt mode and by means of potentiometers Delay 1 and 2, superpose both intensified signals to central pulse. Use "B2" mode to obtain best accuracy.

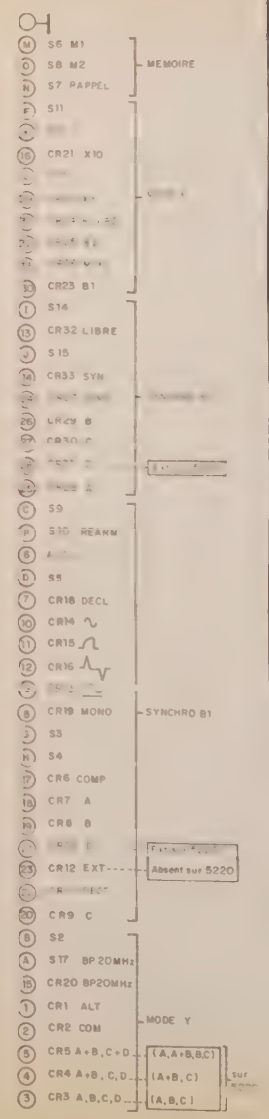
Adjust R266 to obtain 0.000 on display unit.

. With Delay 1 potentiometer, superpose one intensified signal to the second pulse, and with Delay 2 potentiometer, superpose the other intensified signal to the 10th pulse.

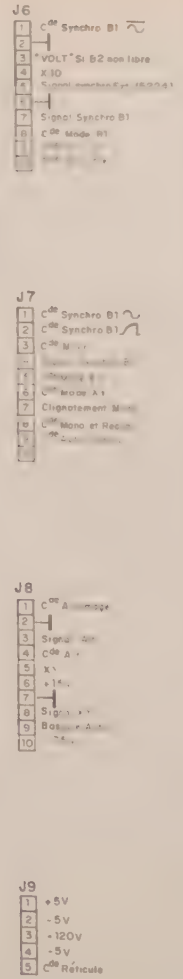
Adjust R263 to obtain 80.0 µs on display unit.

. Check that the sign displayed is " - " when Delay 2 comes

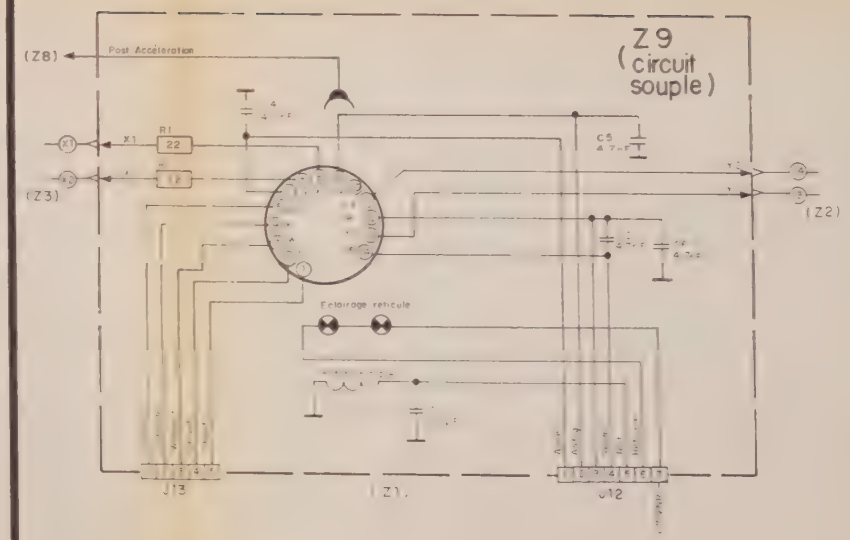
LIAISON Z1 ⟷ Z6
Clavier panneau avant



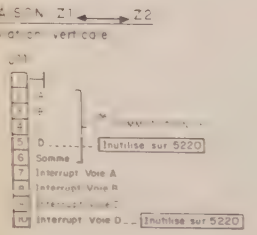
LIAISON Z1 ⟷ Z3
Base de Temps



LIAISON AU TUBE CATHODIQUE



LIAISON Z1 ⟷ Z2
Déviation verticale



J10
1 Cde BP 20MHz
2
3 +15V
4 -5V
5 +65V

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5220 - 5224

Muller
81 - 82

INTERCONNECTION

INTERCONNEXION

Fig 1

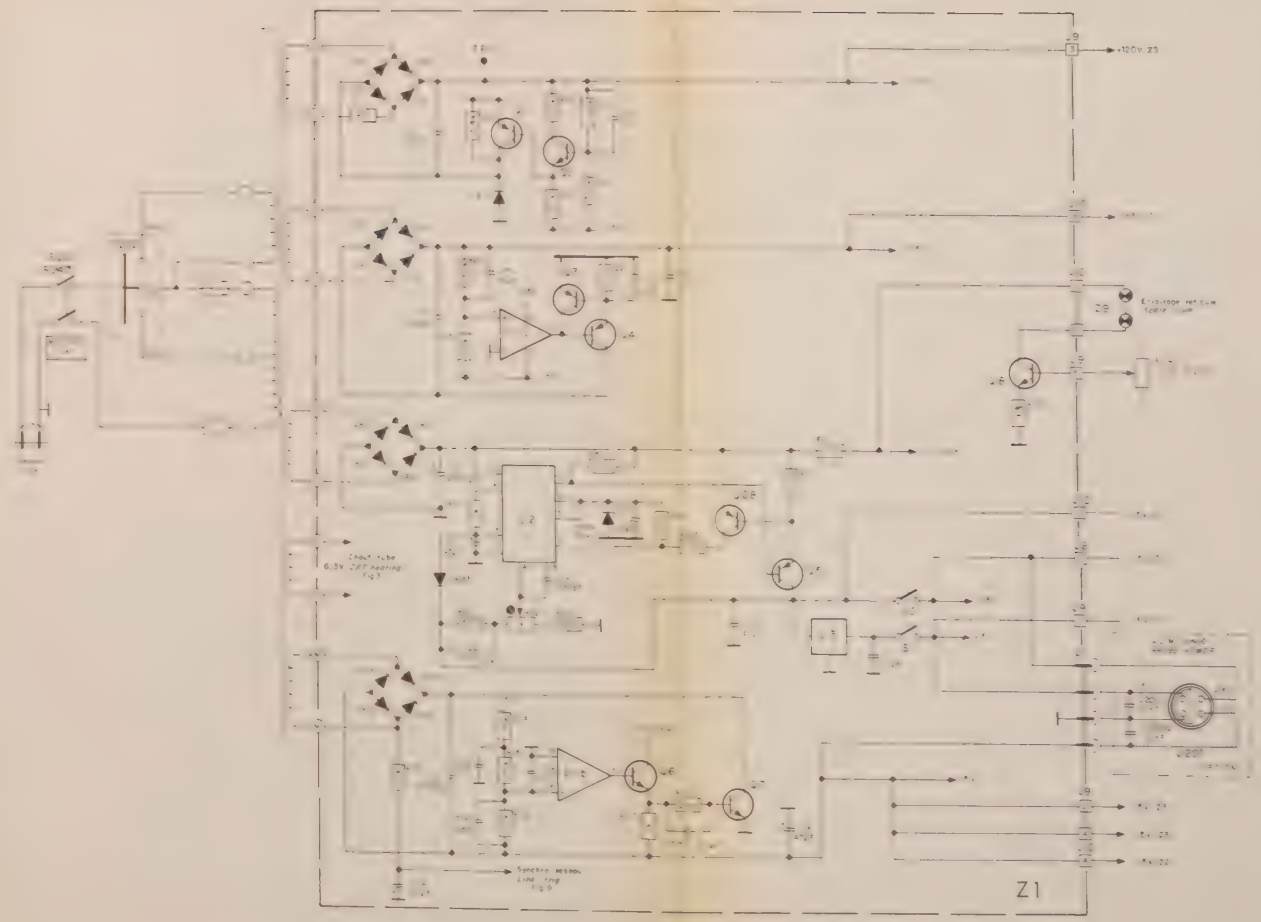

Fig 2 ALIMENTATION BASSE TENSION LOW VOLTAGE POWER SUPPLY

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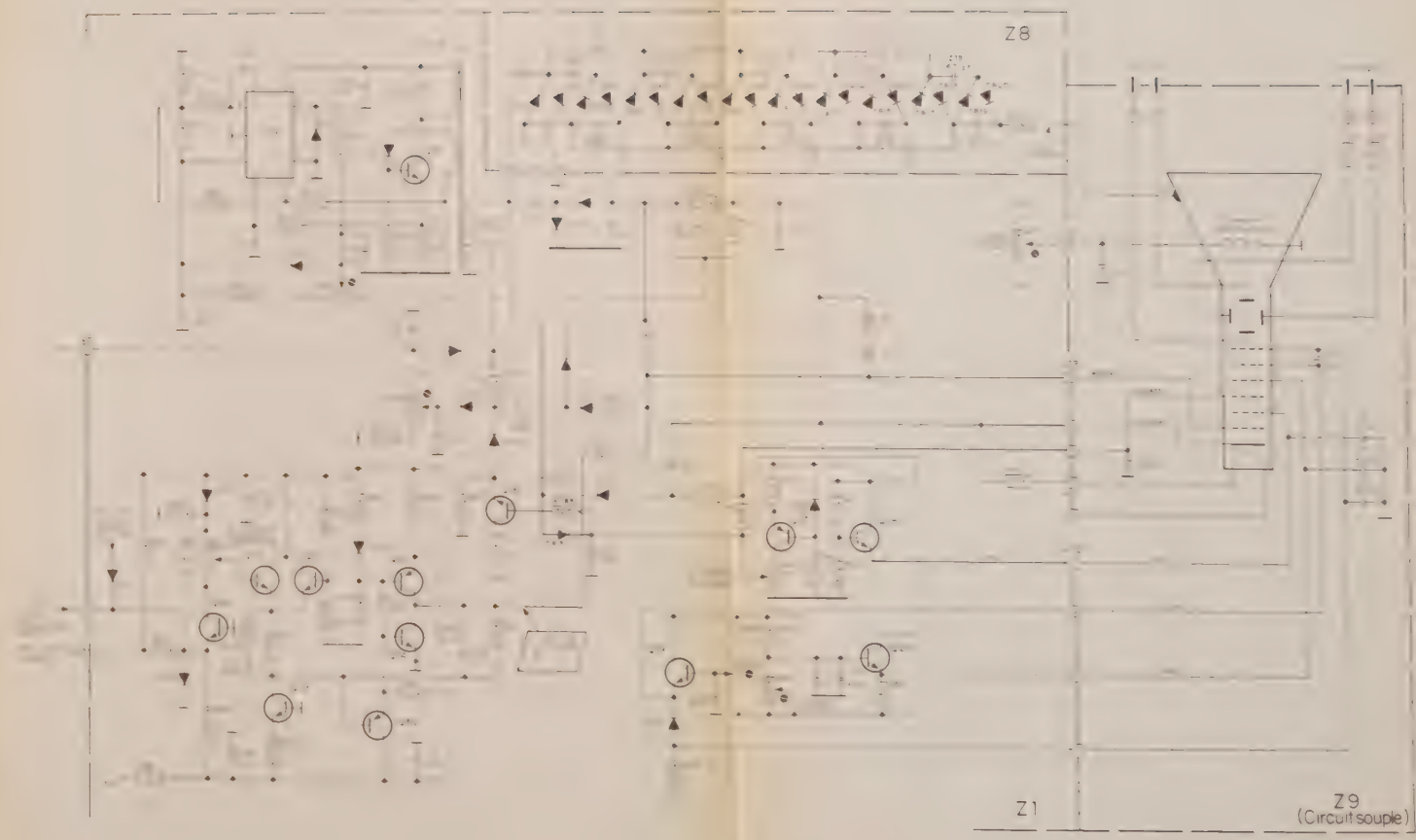

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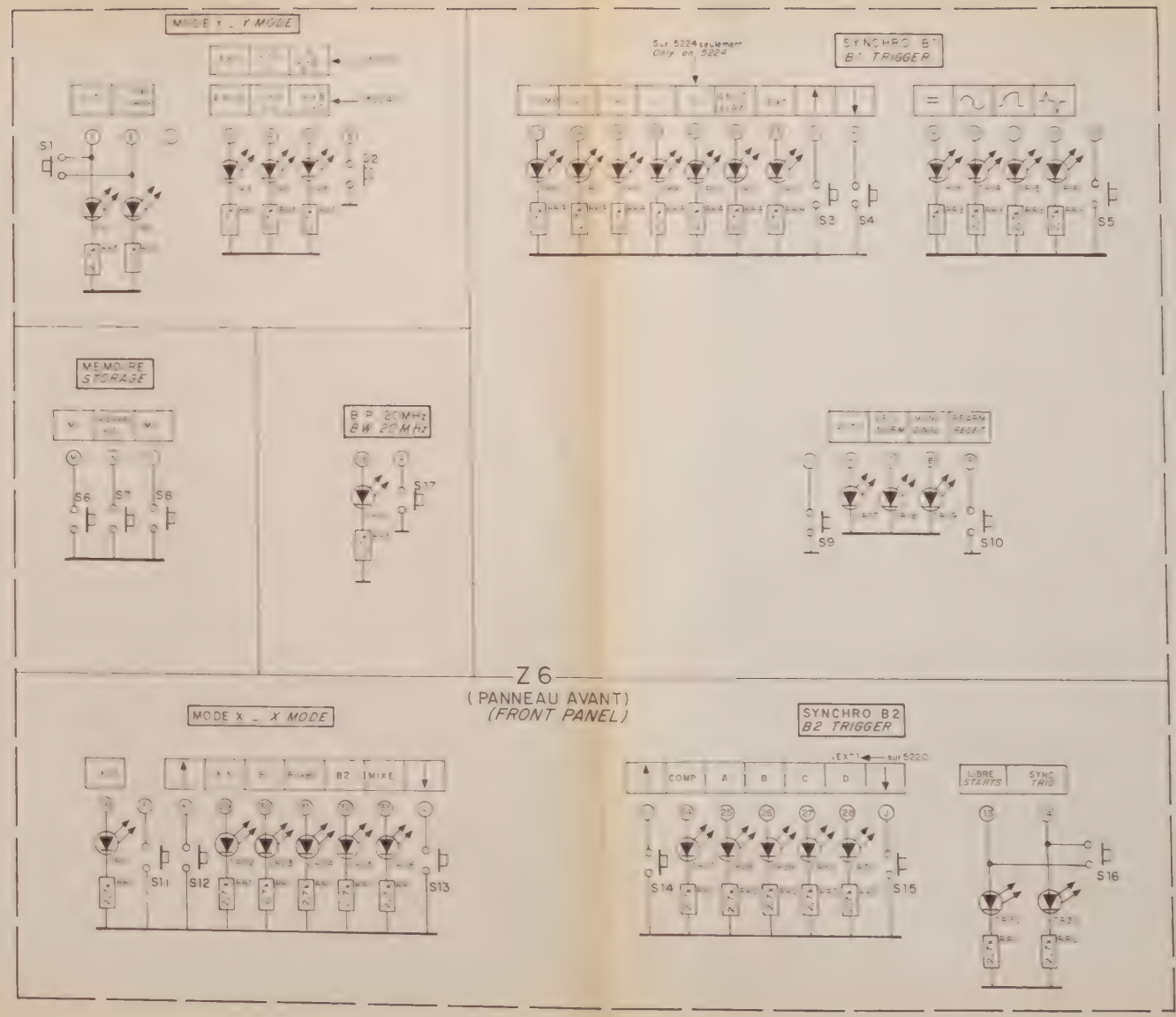
EHV. BRIGHT - UP

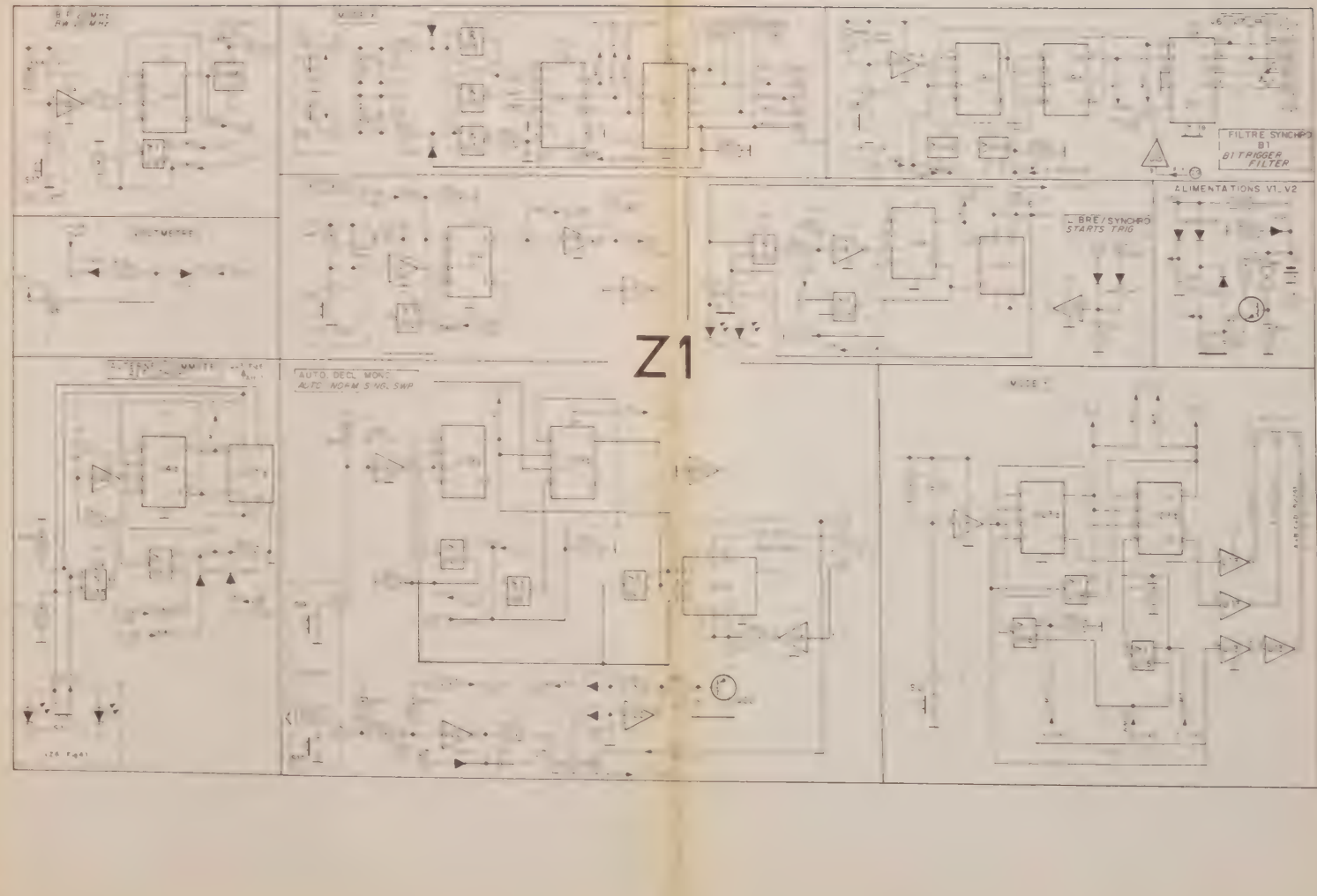
HAUTE TENSION - ALLUMAGE

Fig. 3



KEY BOARD

Fig 4 CLAVIER DE COMMANDES



CONTROL LOGIC

Fig 5 | LOGIQUE DE COMMANDE

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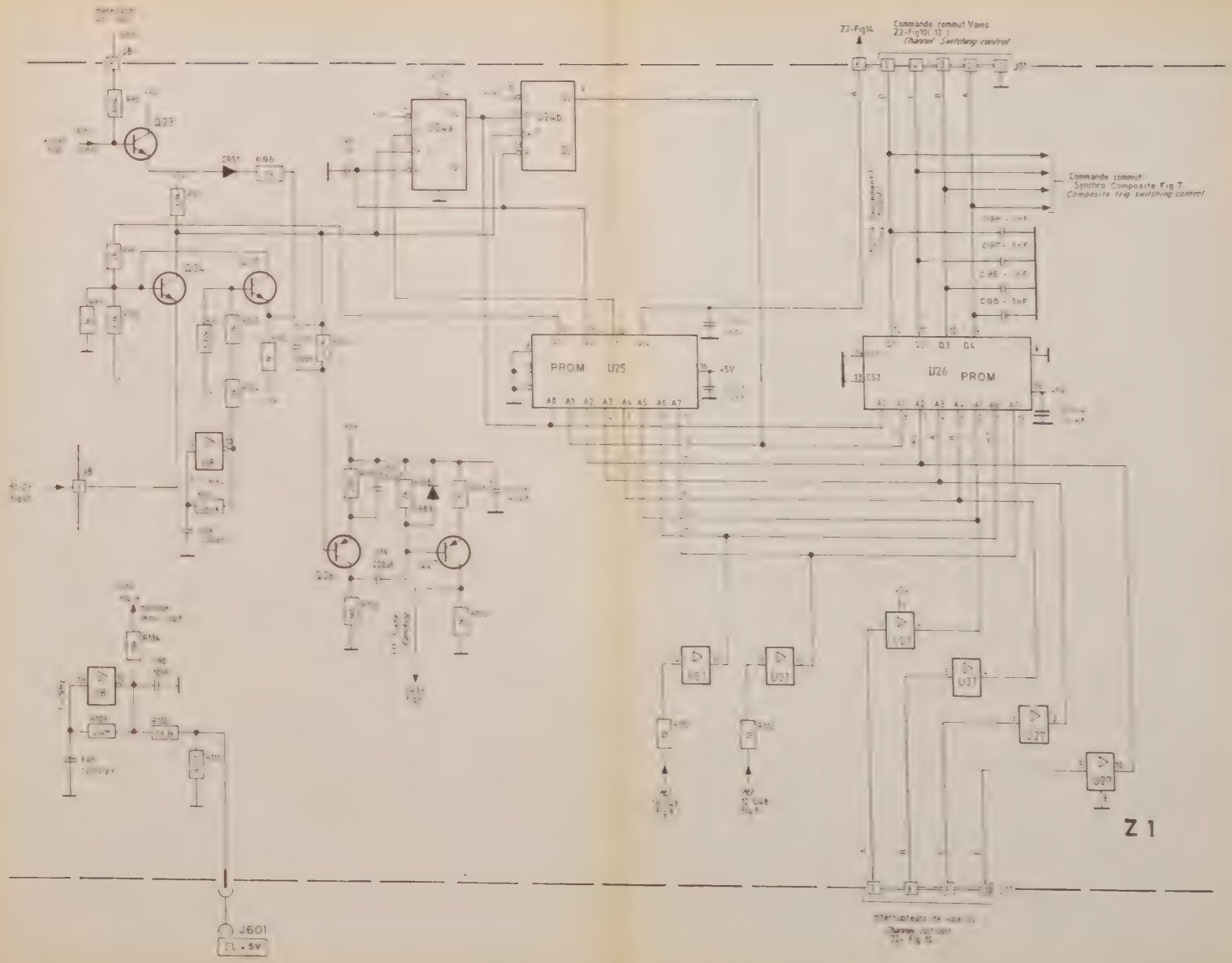
6-6-84



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Y LOGIC

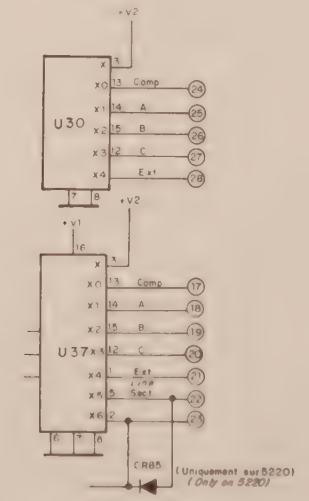
LOGIQUE Y

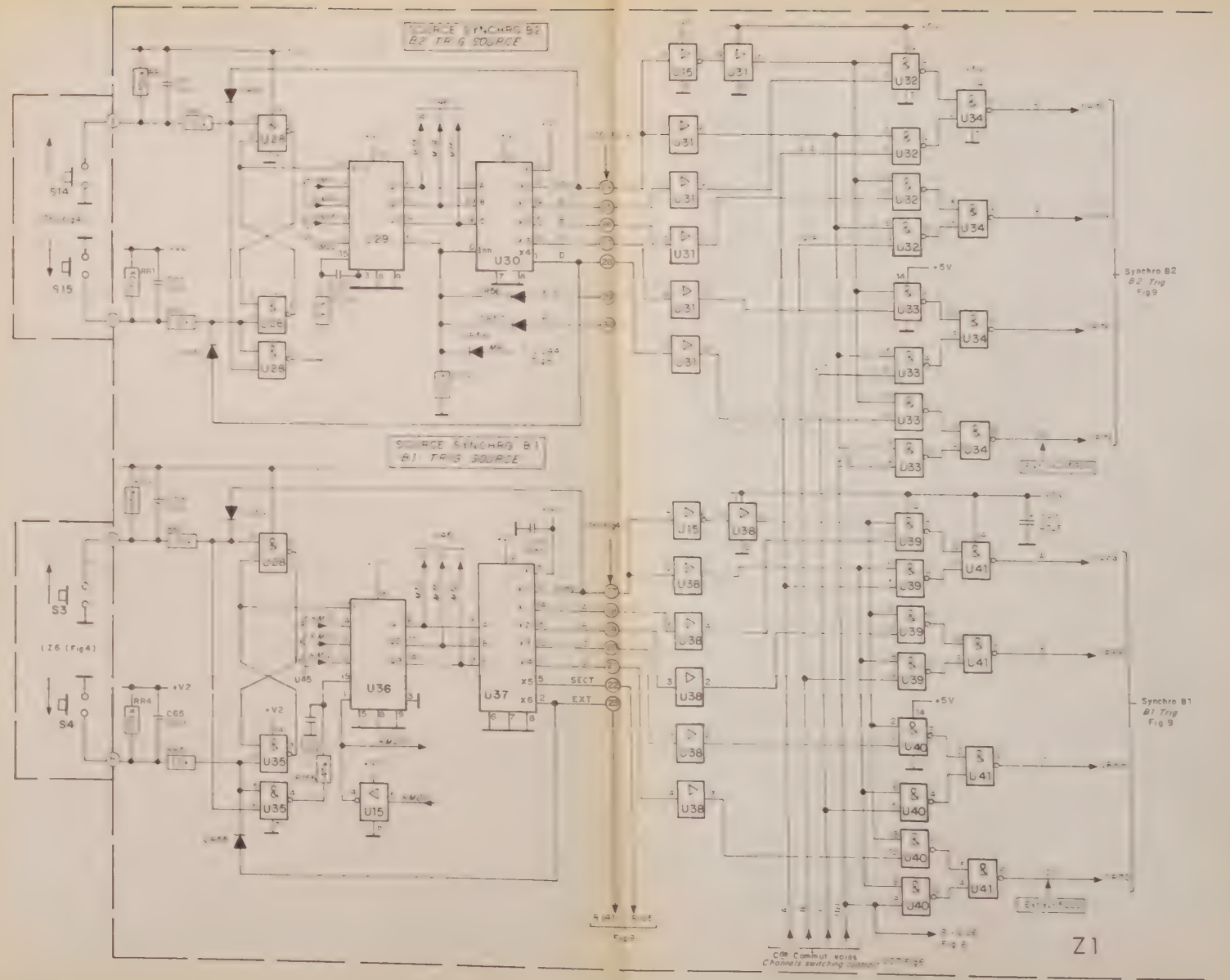
6

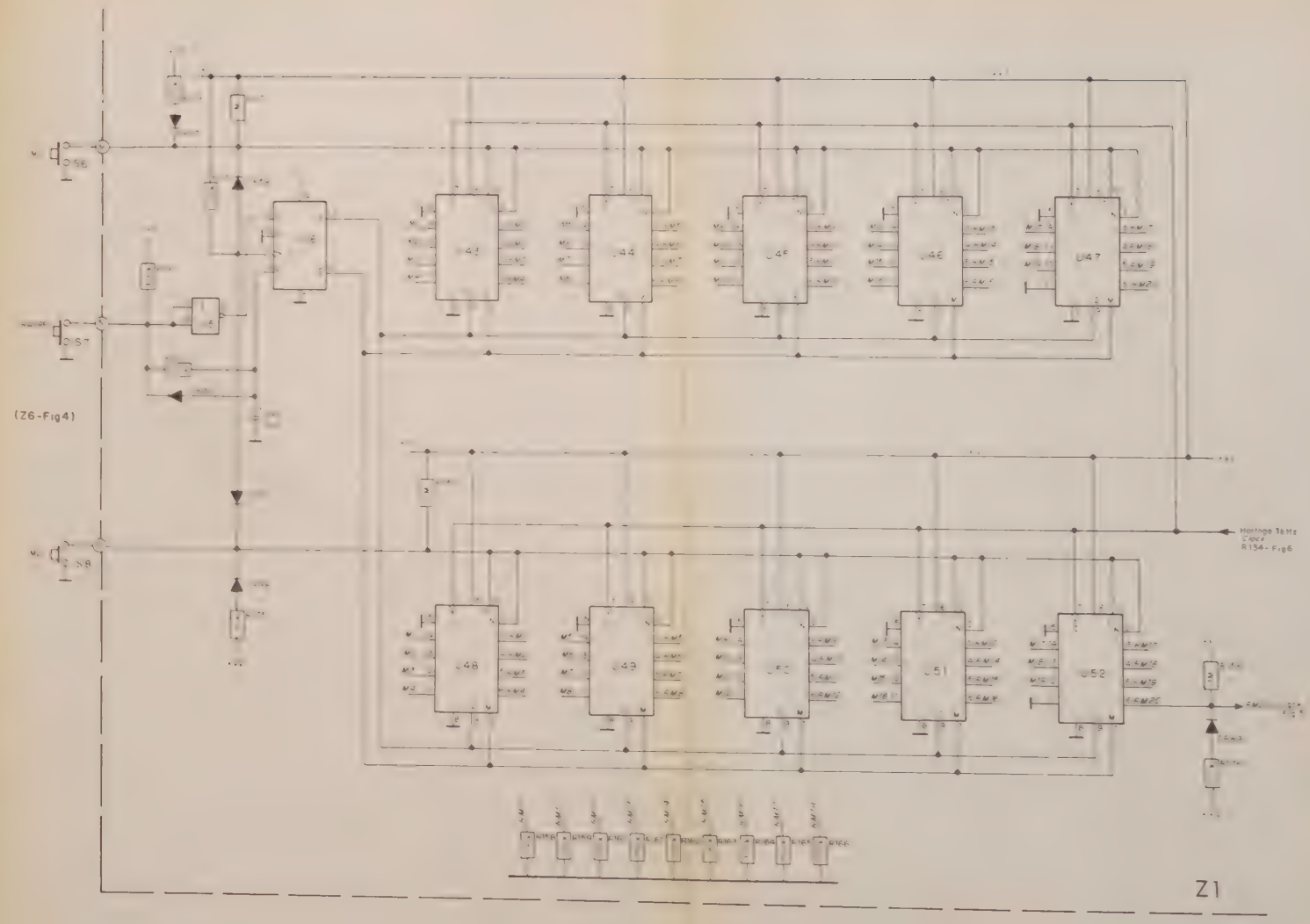
NOTA

FONCTION DES SORTIES DE U30 ET U37 SUR LA VERSION 5220
U30 AND U37 OUTPUTS FUNCTIONS ON SCOPE 5220

La Voie (D) n'existe pas sur le modèle 5220
There is no (D) channel on scope 5220







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KEY-BOARD STORAGE

MEMORISATION DES COMMANDES

Fig. 8

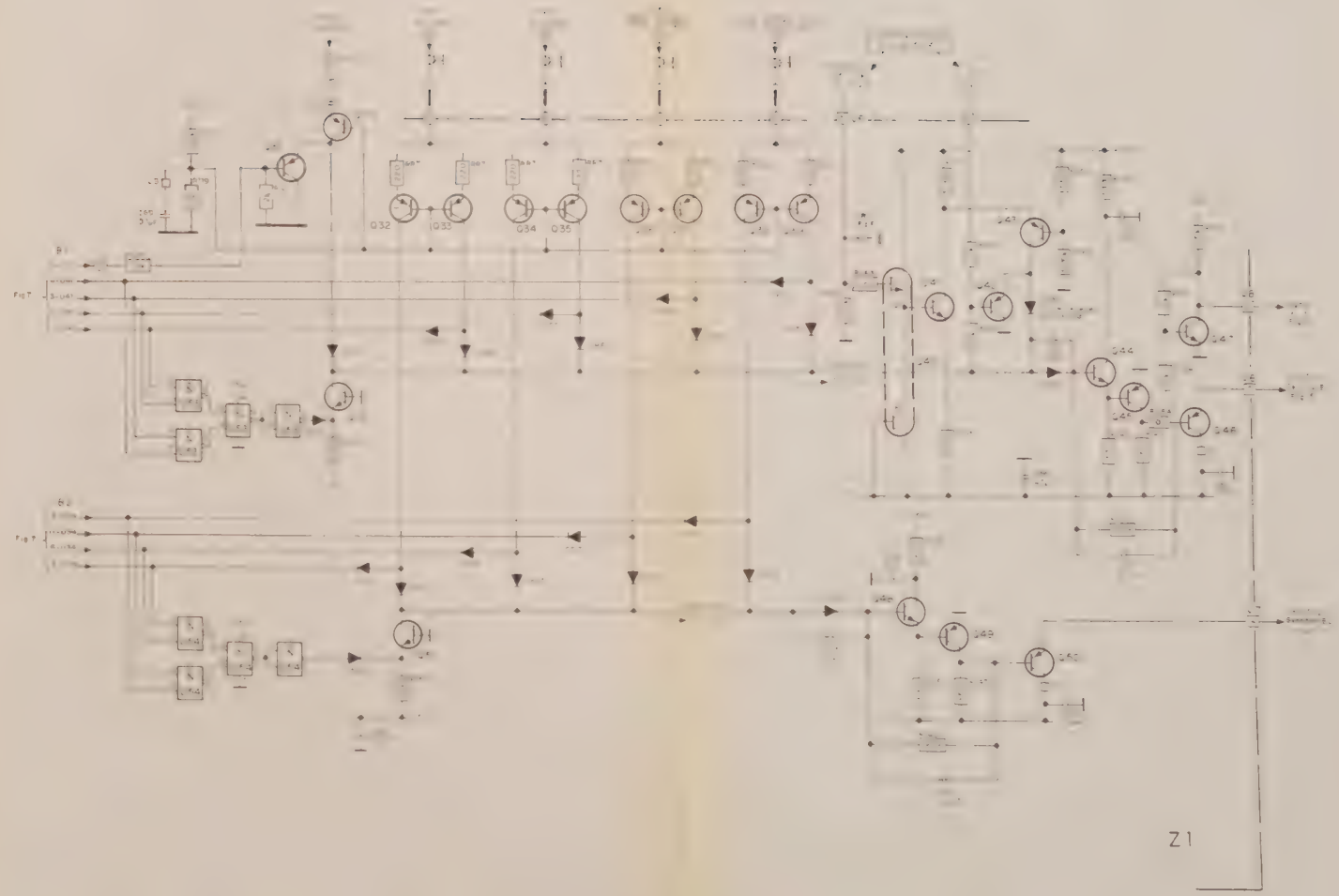

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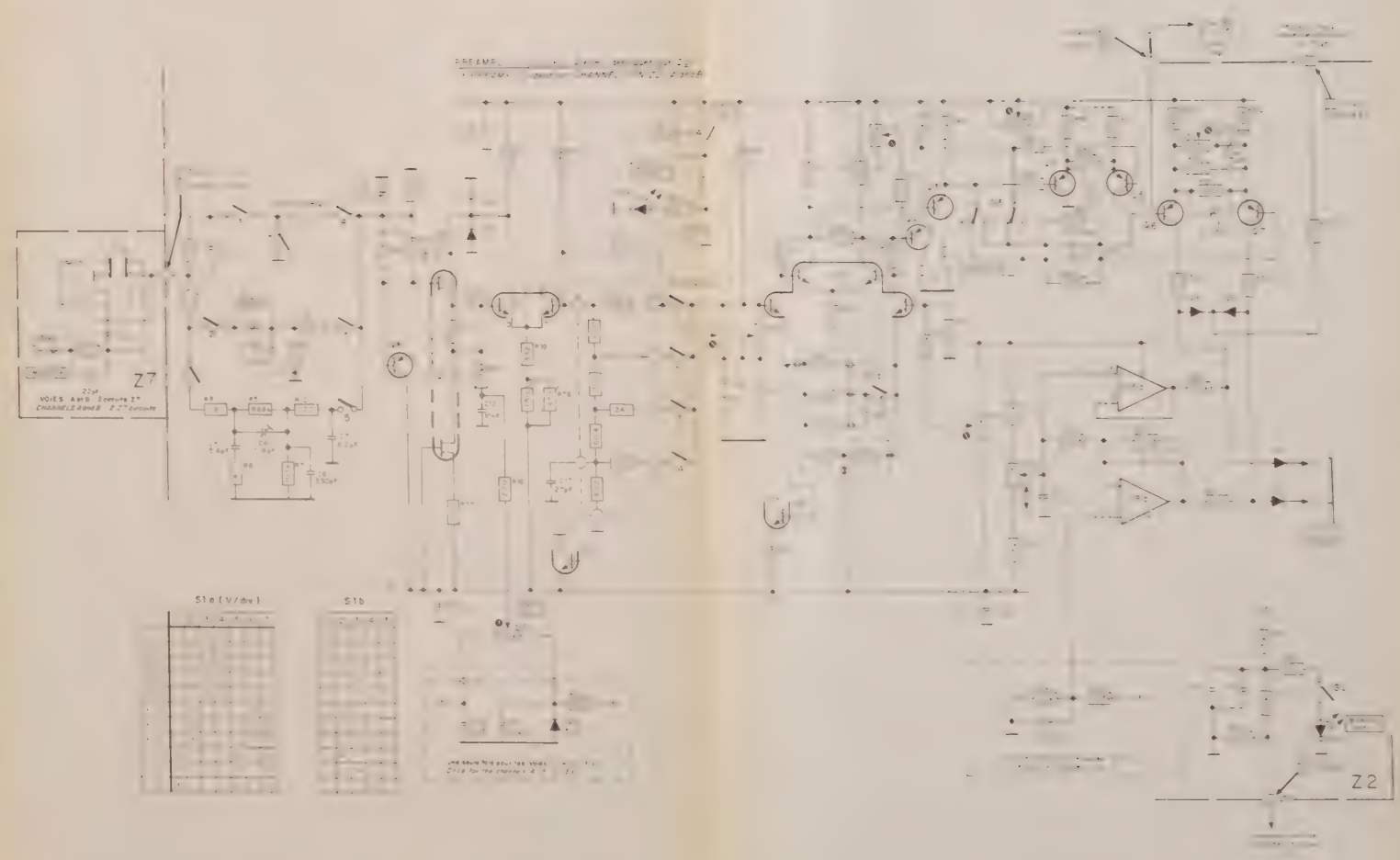
Fig.9 | AMPLIS SYNCHRO B1_B2

B1.B2 TRIG. AMP.



Y PREAMP (A and B)

Fig 10b PREAMPLIFICATEUR Y (A et B)

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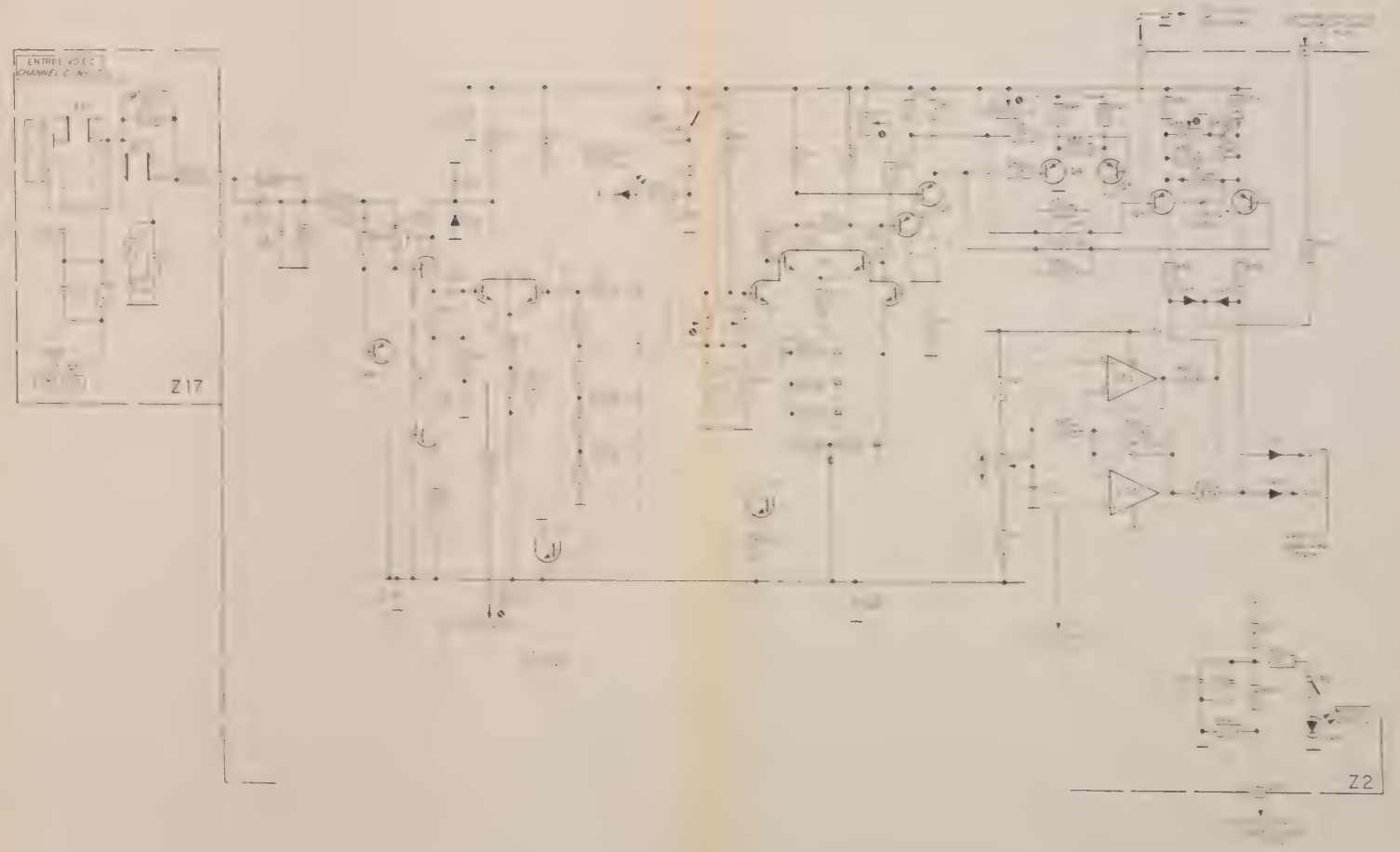
Schlumberger

5220



CHANNEL C PREAMP.

Fig12 PREAMPLIFICATEUR VOIE C

ENERTEC
Schlumberger

5 220

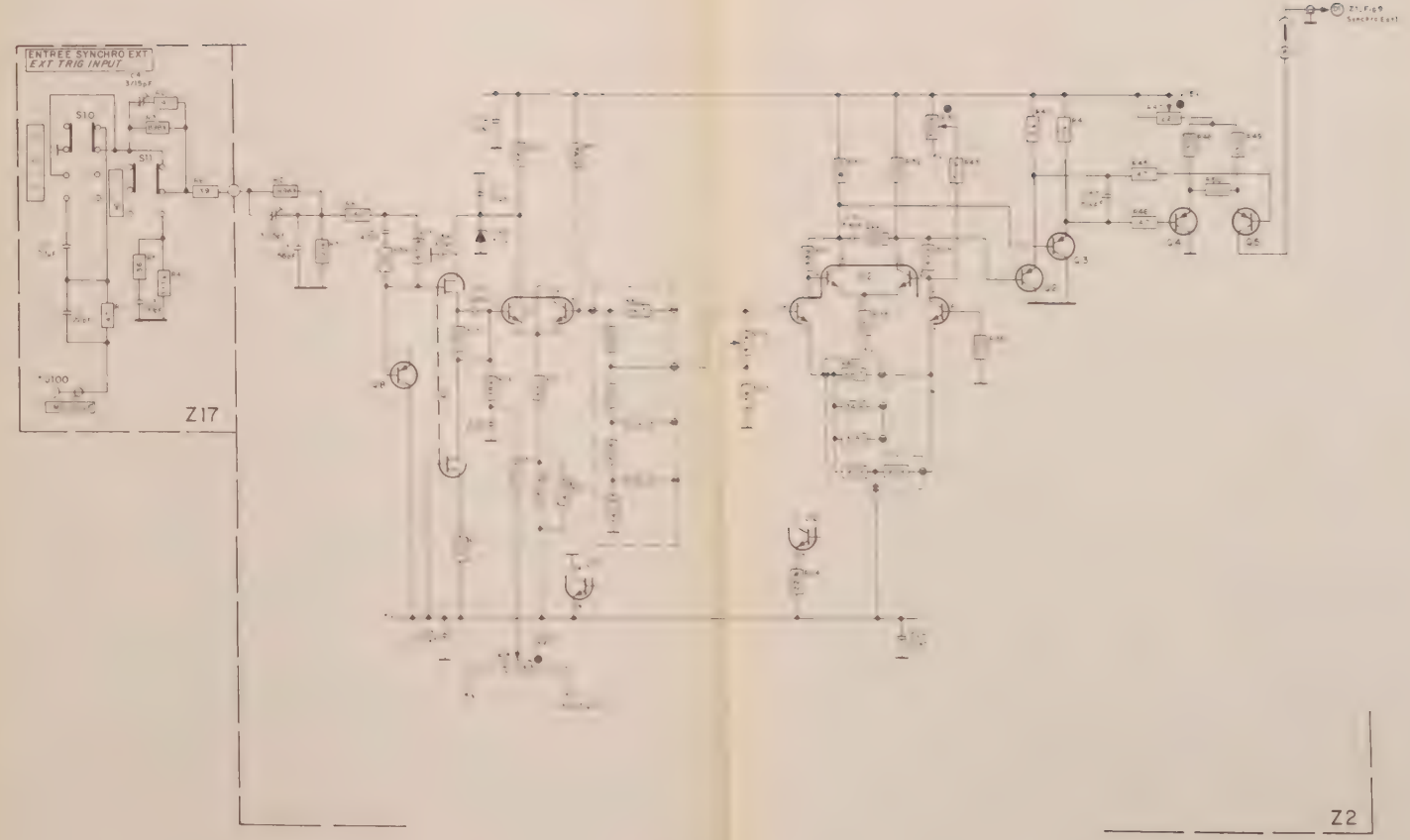


Fig 13 | SYNCHRONISATION EXTERNE

EXT. TRIGGER

ENERTEC
Schlumberger

5220

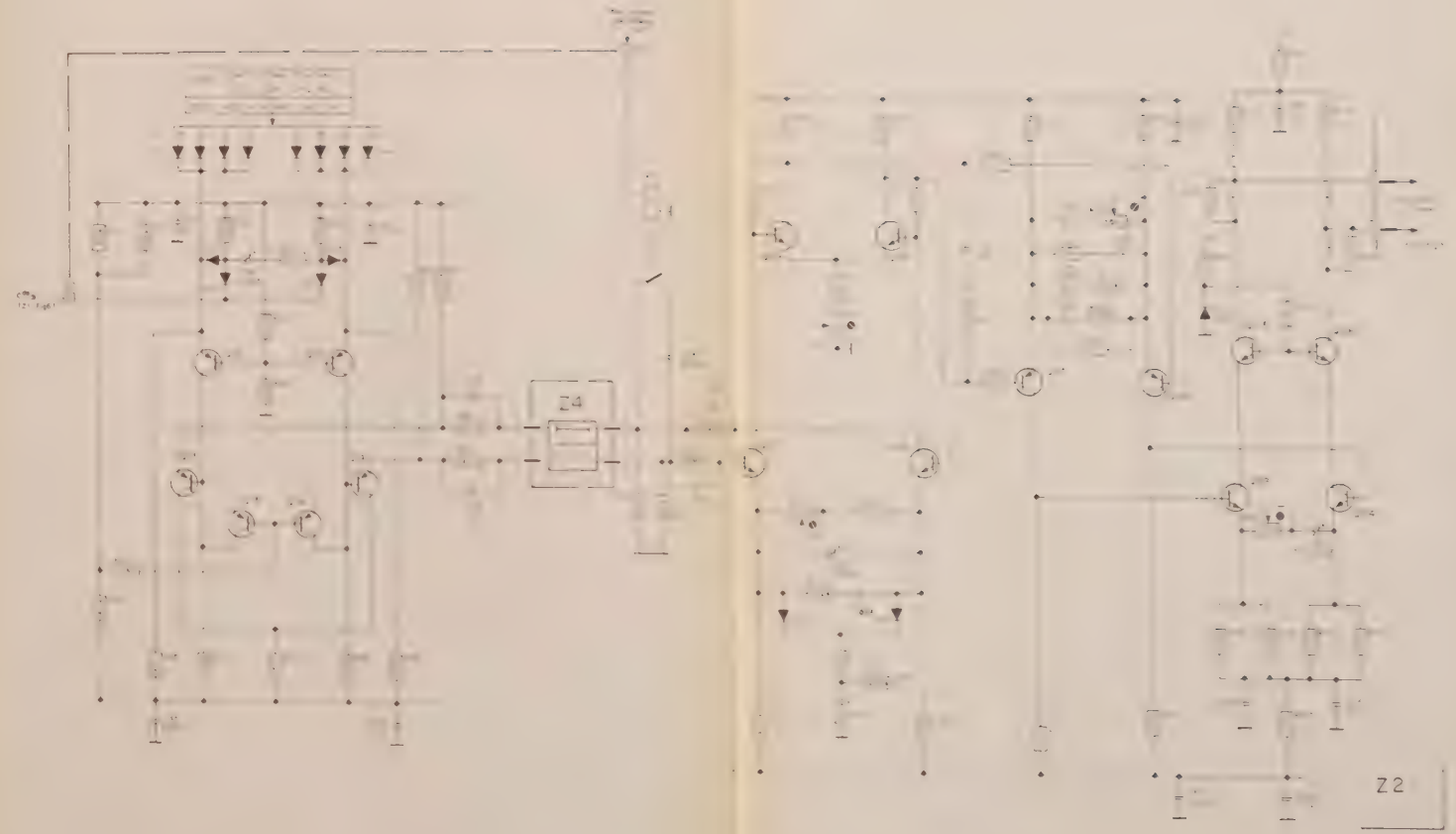


Fig14 AMPLIFICATEUR FINAL Y — Y OUTPUT AMPLIFIER

ENERTEC Schlumberger

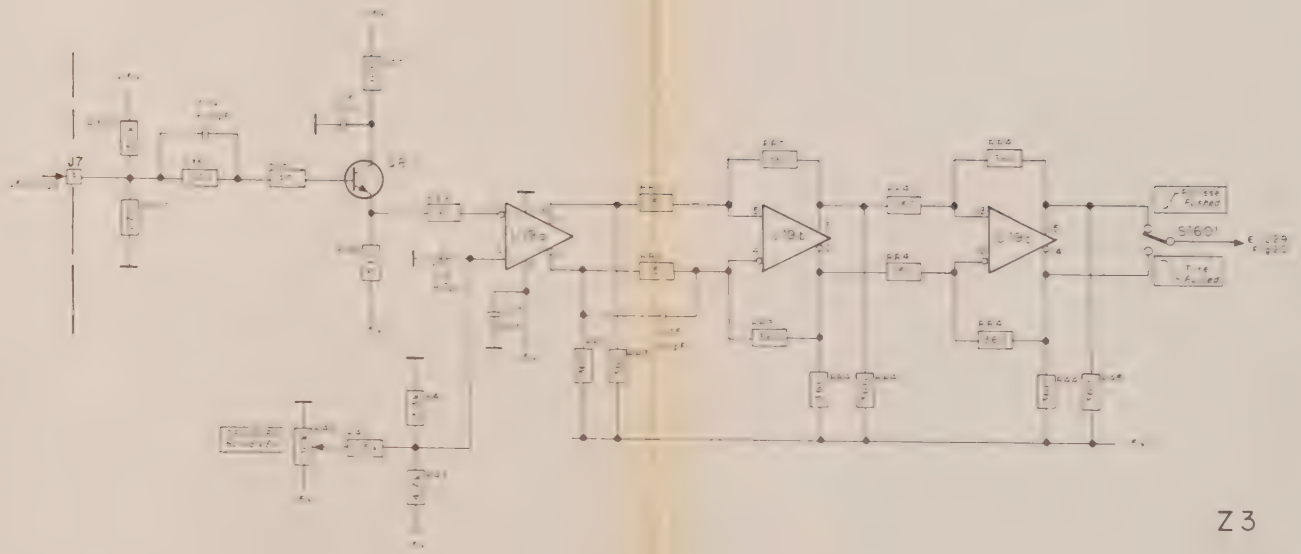
5220-5224

ENERTEC
Schlumberger

5220 - 5224

B1 TRIGGER

Fig.15 SYNCHRONISATION B1



Z3

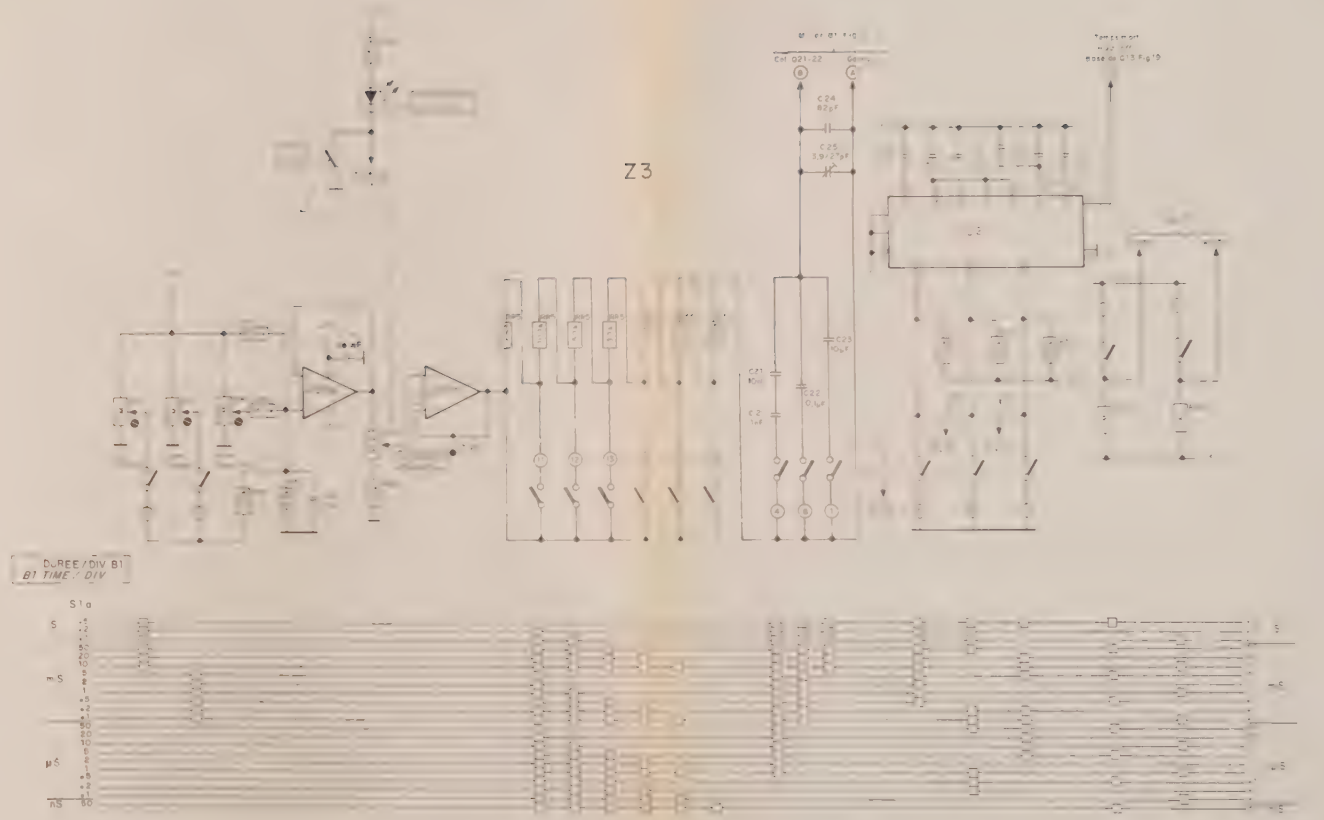
ENERTEC
Schlumberger

5220 - 5224

B2 TRIG

SYNCHRONISATION B2

Fig 16



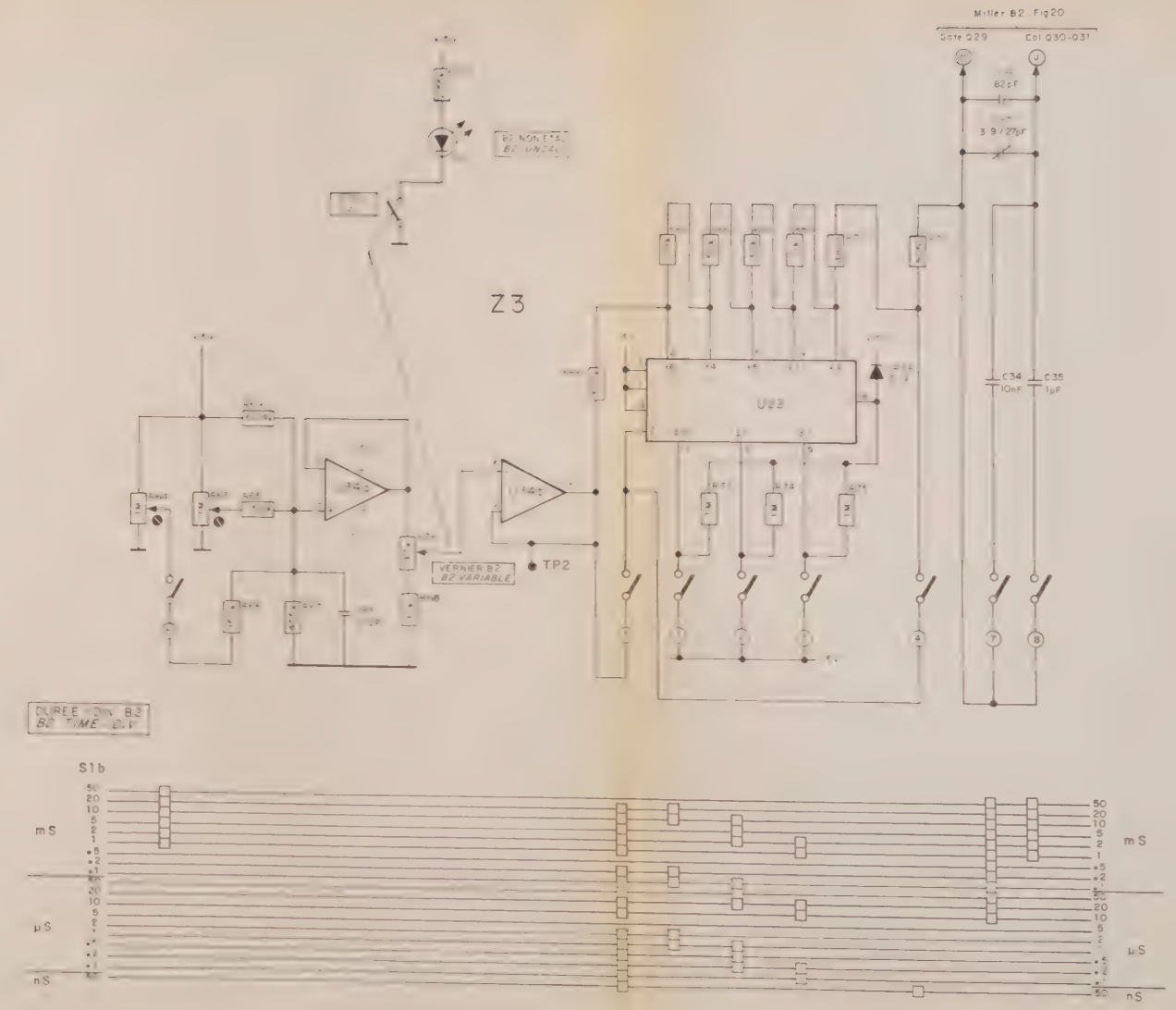
ENERTEC
Schlumberger

5220 -5224

B1 TIME / DIV. SWITCH

COMMUTATEUR DUREE / DIV. B1

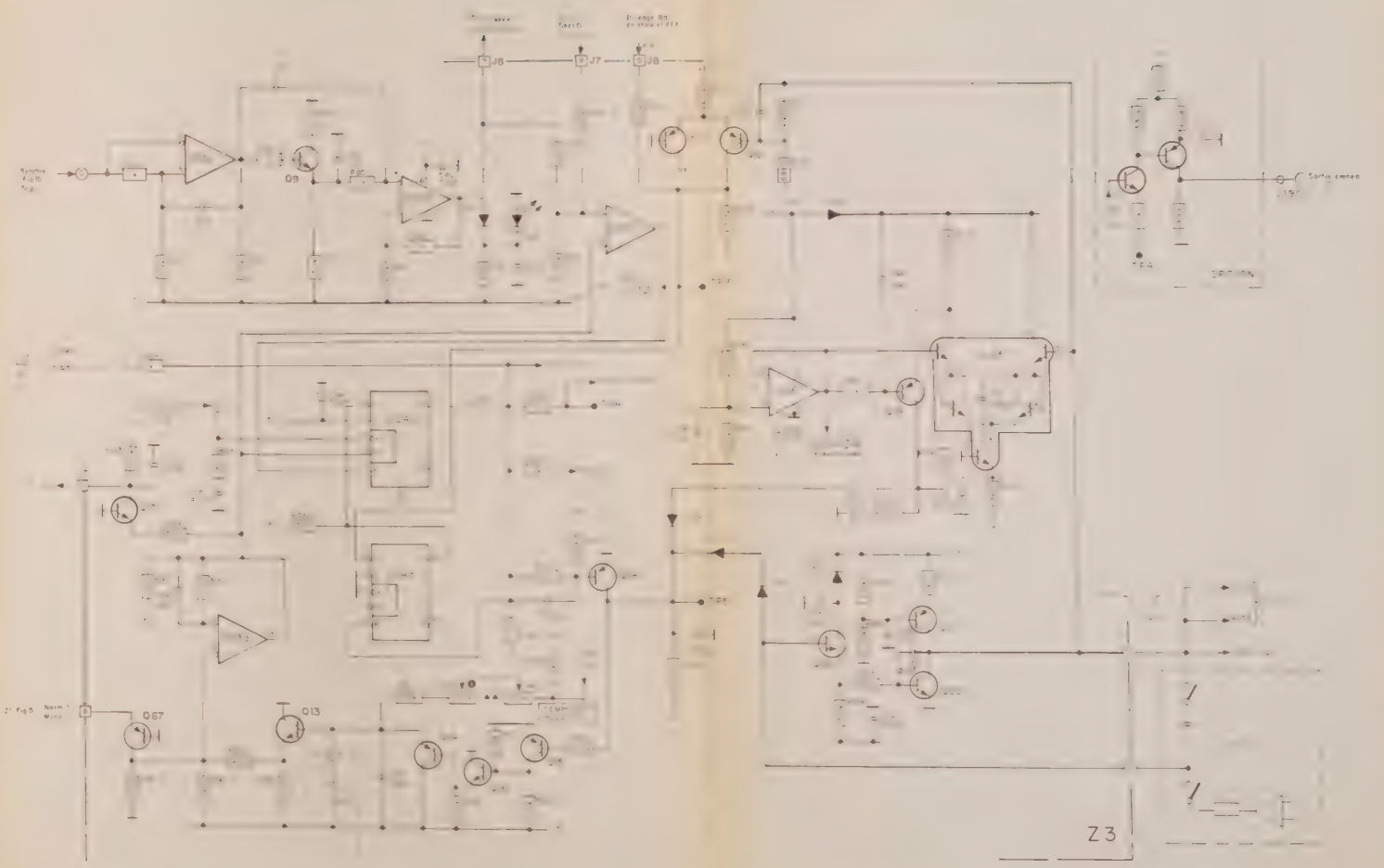
Fig 17



ENERTEC
Schlumberger

5220 - 5224

Fig 18 COMMUTATEUR DUREE/DIV. B2 — B2 TIME DIV. SWITCH



B1 TIME BASE

Fig 19 BASE DE TEMPS B1

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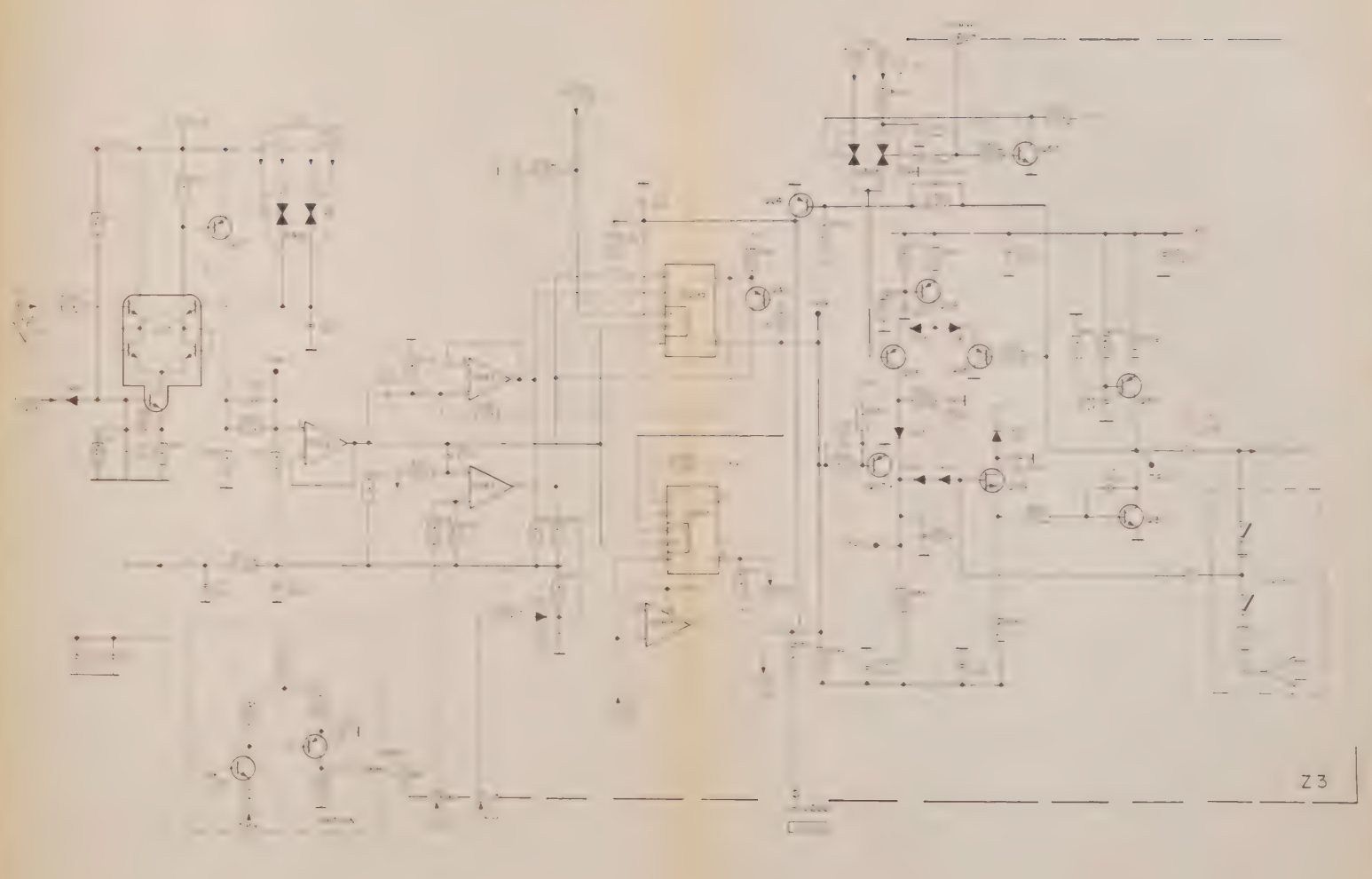
5220-5224



B2 TIME BASE

Fig20 BASE DE TEMPS B2

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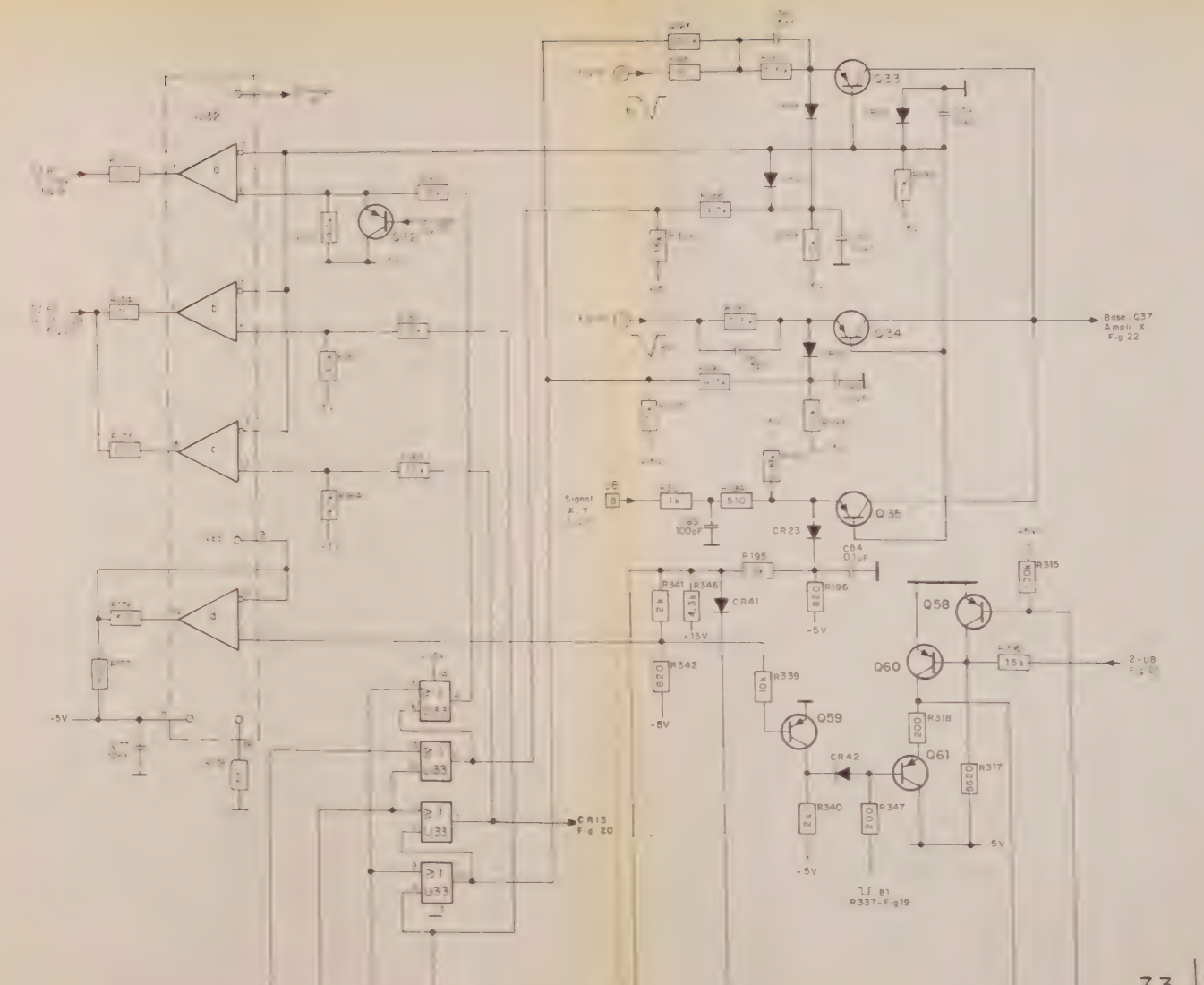
Schlumberger

5220 - 5224



ENERTEC
Schlumberger

5220 - 5224

X SWITCHING

COMMUTATION X

Fig 21

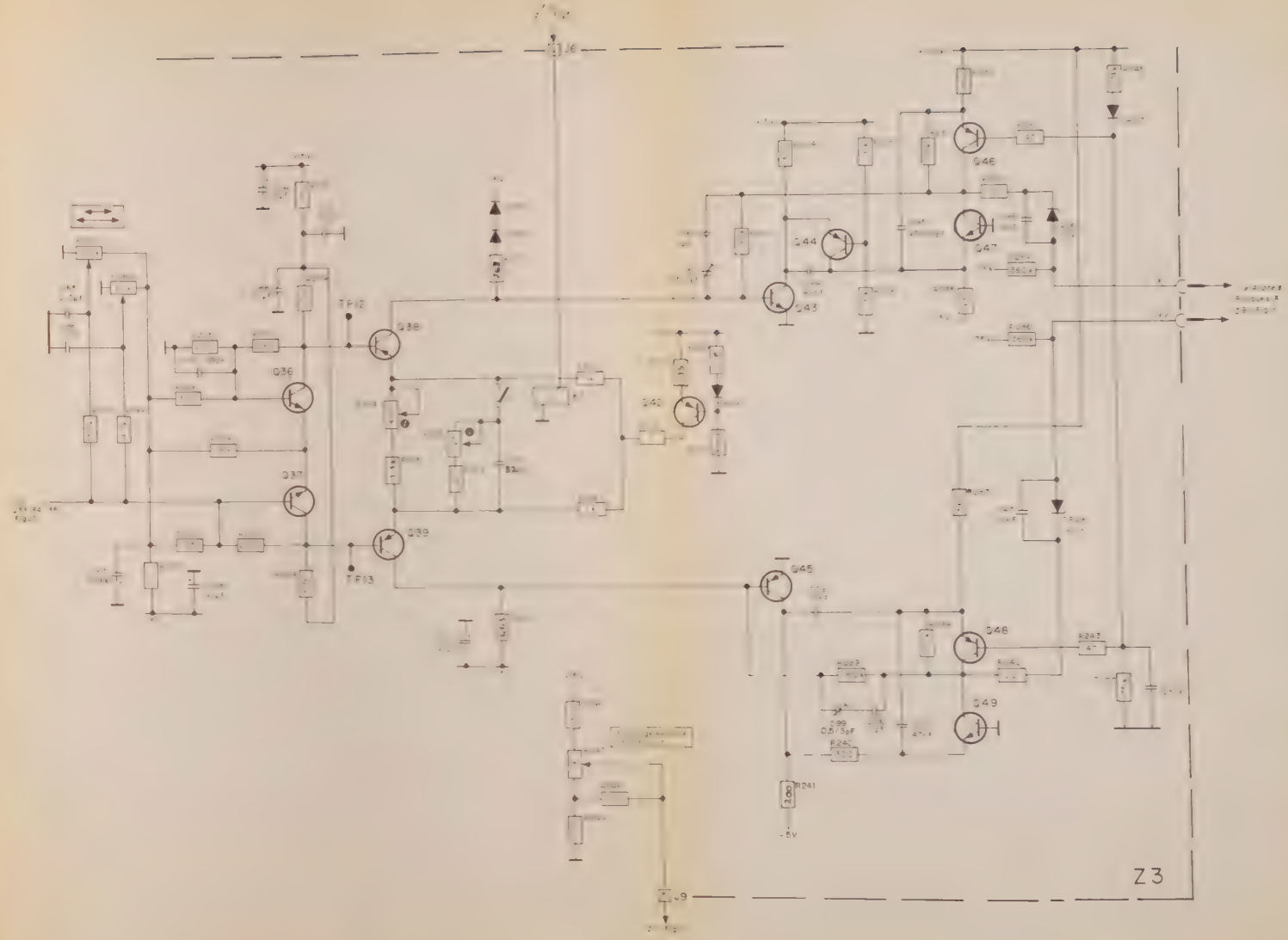
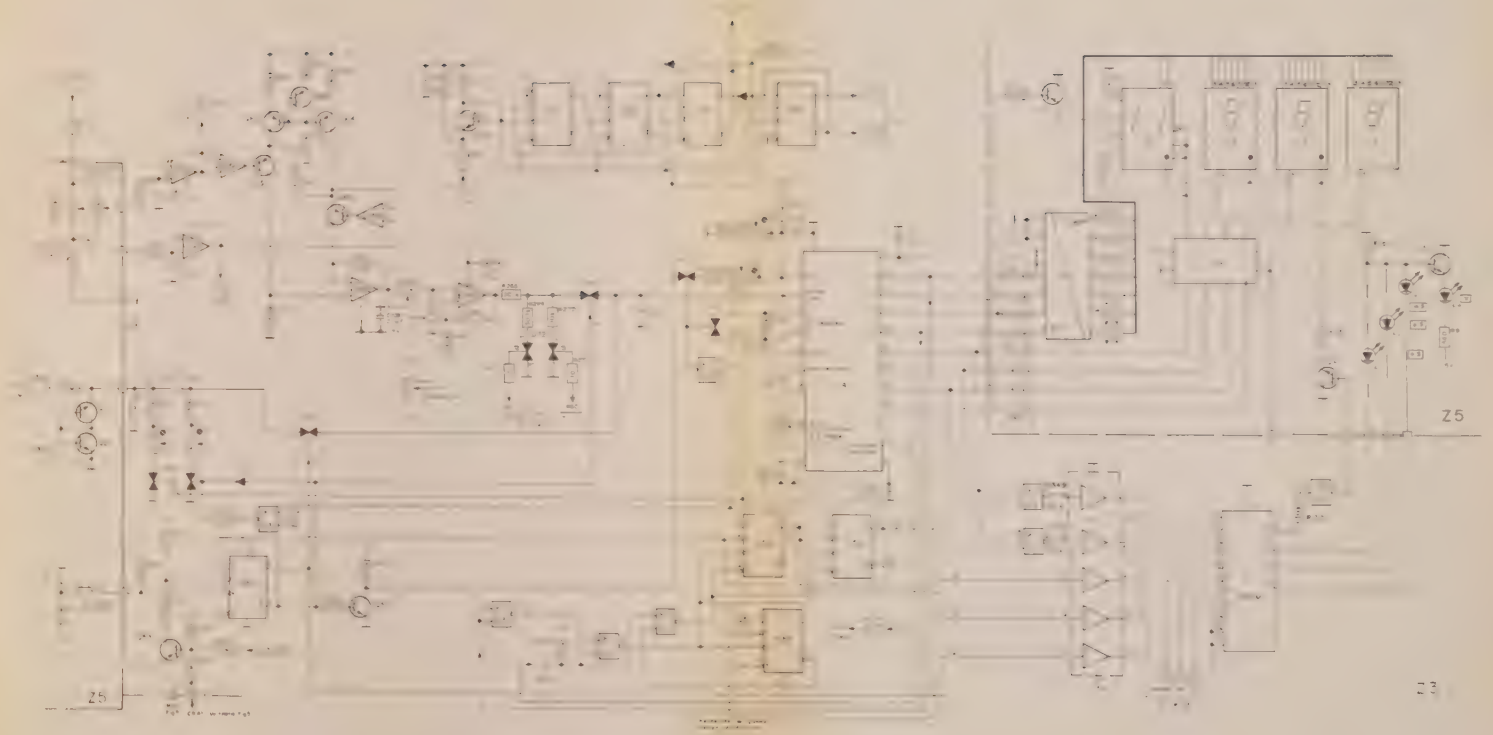


Fig 22 AMPLIFICATEUR HORIZONTAL — HORIZONTAL AMPLIFIER



VOLTMETER Δt

Fig 23 VOLTMETRE Δt

ENERTEC
Schlumberger

5220 - 5224

FRENCH-ENGLISH TRANSLATION FOR PARTS LIST

The following parts list being in French, this table gives the translation of the principal words used in it :

1°) At the top of each page :

Repère topologique	Référence
Component n° article	Component code number
Composant Désignation	Component Description

2°) In the parts list :

acier	steel
adaptateur	adaptator
affichage	display
alimentation	power supply
anneau	ring
atténuateur	attenuator
axe	shaft
béquille	prop
bielle	rod
blanc	white
bleu	blue
blindage	screen - shield
bobine	coil
boîtier	housing
bouche trou	plug-hole
bouton	knob
bouton gravé	engraved knob
butée	stop
bras	arm
bride	flange
cablage	wiring
cable	cable
cable souple	flex cable
cable plat	flat cable
cache	masking plate
cale	spacer
capacité	capacity
capot	cover
capteur	sensor
capuchon	cap

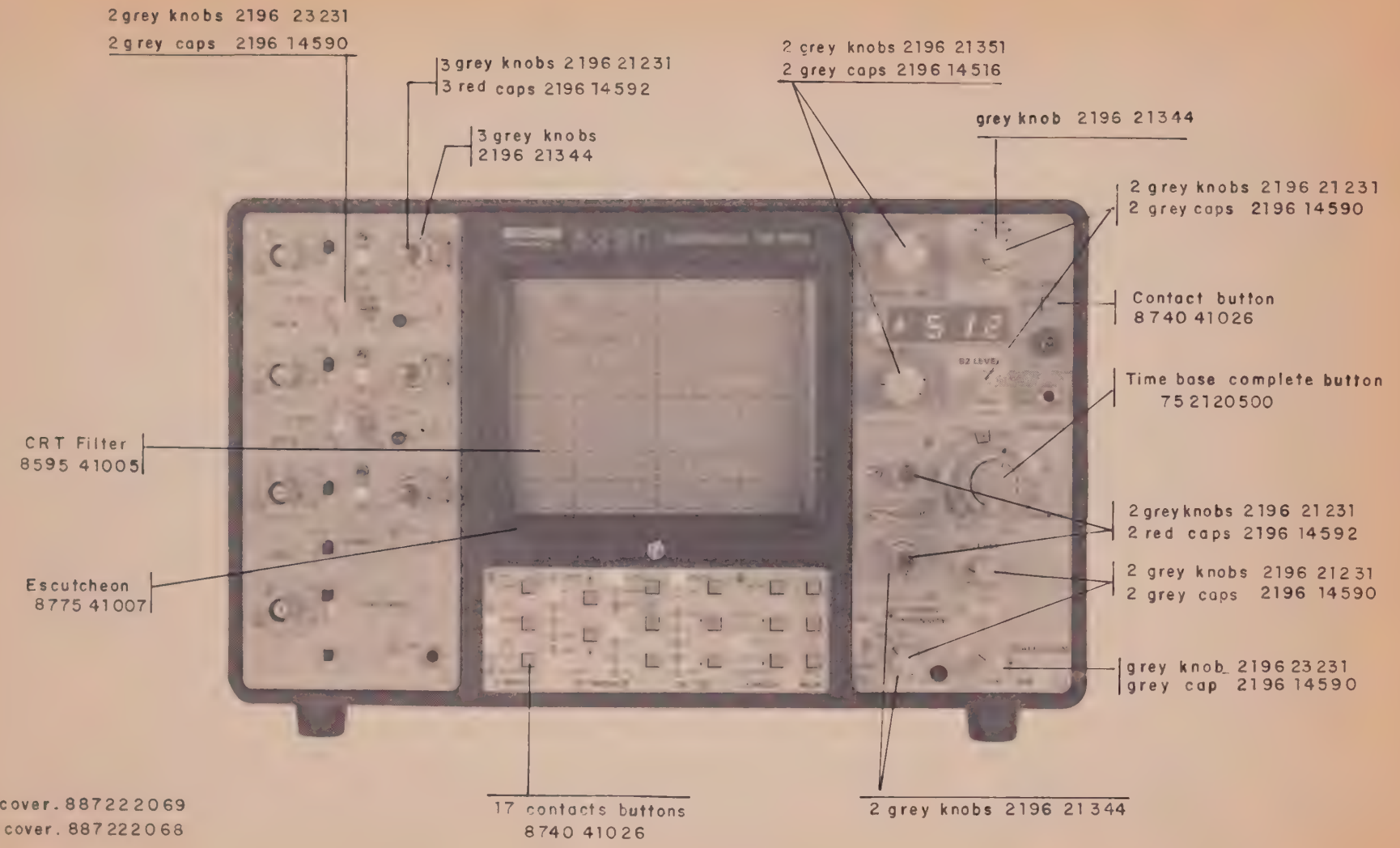
carte	card
cellule	cell
châssis	frame
chimic	chemical
CI.INT	integrated circuit
clavier	keyboard
colonne	pillar
collier de câble	cable clamp (or clip)
commutateur	switch
collier de fixation	bracket
connecteur	connector
cordon	cable
cornière	side
cosse	cable eye
cosse à souder	bold hole
coté	side
courroie	belt
couvercle	cover, lid
CRT	tube cathodique
curseur	wiper
diode redres.	diode rect.
diode pont	diode bridge
divers	miscellaneous
éclairage tube	scale illumination
écrou	nut
écrou cage	FA nut
écrou H	Hex. nut
entretoise	spacer
équerre	bracket
fibre optique	optical fiber
fibre nue	bare fiber
fiche	plug
filtre	filter
fusible	fuse
gaine	sleeve
gravé	engraved
grille	grid
gris	grey
habillage	boxing
jaune	yellow
LAR	delay line
ligne à retard	delay line
lien bande	strip
manchon	grommet
masse	ground
montage	assembly

noir	black
noix	yoke
noyau	yoke
oscillateur	oscillator
panneau	panel
panneau arrière	rear panel
panneau avant	front panel
pied	foot
plancher	foot
plaquette	plate
platine	panel
poignée	handle
plot de cablage	wiring pillar
potentiomètre	potentiometer
poulie	pulley
poulie dentée	toothed pulley
quartz	crystal
radiateur	heat sink
régulateur	regulator
relais	relay
rés.	resistor
résistance	resistor
reseau res.	res. network
res. bobine	wire wound resistor
ressort	spring
réticule	graticule
rivet aveugle	blind rivet
rondelle dent	spring washer
rouge	red
roulement	bearing
ruban	tape
secteur	line
semelle	base, pedestal, sole
serre câble	cable grip
sonde	probe
support	socket
tiroir	rack
transistor	transistor
valise de transport	carrying case
ventilateur	fan
vert	green
vis	screw
vis C	CH screw
vis HC	grub screw
visualisation	display
voie	channel
valise de transport	carrying case
volet	shutter

6.- NOMENCLATURE

RECAPITULATIF

Pages		
1		Code des boutons
2-3		Référence fabricant des éléments repérés NO dans la nomenclature
4-5		Abréviations fournisseurs
6	7 5220 0020	Accessoires
6	7 5227 0021	Option : prise alimentation sonde
7	7 5224 0050	Habillage
7		Platines sérigraphiées
8	7 5220 0051	Equipement avant
8	7 5220 0053	Equipement de platine
9	7 5220 0300	Bloc Alimentation
10	7 5224 0400	Tube cathodique
10	7 5224 0450	Interconnection châssis
11	7 5224 0500	Raccordement électrique et mécanique
12	7 5220 7021	Circuit Z1 - Carte alimentation
12	7 5224 7020	Circuit Z1 (suite)
24	7 5220 5101	Circuit Z2 - Carte Y
24	7 5224 1101	Circuit Z2 - Préampli (Voie A seulement)
25	7 5220 1011	Circuit Z2 - Préampli Y (A ou B)
28	7 5220 1121	Circuit Z2 - Voie C
31	7 5220 1131	Circuit Z2 - Synchro Ext.
33	7 5224 1141	Circuit Z2 - Final Y
36	7 5224 9151	Circuit Z3 - Carte X
49	7 5224 1143	Circuit Z4 - Ligne à retard
50	7 5224 1232	Circuit Z5 - Carte voltmètre
51	7 5224 1041	Circuit Z6 - Clavier
52	7 5224 1102	Circuit Z7 - Entrée Y (A ou B)
53	7 5224 1032	Circuit Z8 - Post-accélération
54	7 5224 1033	Circuit Z9 - Liaison tube
54	7 5220 1122	Circuit Z17 - Entrée (C ou Synchro Ext.)



Upper cover. 887222069
Lower cover. 887222068
4 PVC feet. 314602015
Front panel cover. 8350 41029

REFERENCE FABRICANT DES ELEMENTS

REPERES N0 DANS LA NOMENCLATURE

RESISTANCES

NO101	2,7 Ω - 4,7 Ω - 6,2 Ω	BB 1/8	ALLEN BRADLEY
	10 Ω à 150 kΩ	NK3	SOVCOR
	160 Ω à 100 MΩ	BB 1/8	ALLEN BRADLEY
NO102	1 Ω à 1 MΩ	CR25	COGECO
	0,22 à 2,2 MΩ	LCA 0207	DRALORIC
	0,5 à 5,1 MΩ	R25 J	ROHM
NO103	1 Ω à 1 MΩ	CR25	COGECO
	0,22 à 2,2 MΩ	LCA 0207	DRALORIC
NO106	2,2 Ω à 4,7 MΩ 5%	LCA 0411	DRALORIC
	4,7 Ω à 1 MΩ 5%	CR37	COGECO
	1,2 à 10 MΩ 10%	CR37	COGECO
	2,2 à 4,7 MΩ 5%	LCA 0411	DRALORIC
NO112	1 Ω à 1 MΩ	SMA 0207	DRALORIC
NO121	4,7 à 22 kΩ	ROP 2	SFERNICE
NO131	20 Ω à 39 kΩ	ROP 4	SFERNICE
NO141	20 Ω à 56 kΩ	ROP 6	SFERNICE
NO190	Réseau 7 x 68 Ω à 470 kΩ	784-1 R - xxx	BECKMANN

CONDENSATEURS

NO203	0,1 µF à 100 µF	TAG (1 à 11) F	I T T
NO205	1 µF à 330 µF	S1 - CTS 13	FIRADEC
NO220	4,7 µF à 2200 µF	SLVB F5	CHEMI-CON.
NO221	4,7 µF	2222-015-90003	COGECO
	10 µF	2222-015-16109	COGECO
	22 µF	2222-015-16229	COGECO
	4,7 µF 10 V	2222-015-14479	COGECO
	47 µF 63 V	2222-016-18479	COGECO
	100 µF 25 V	2222-016-16101	COGECO
	100 µF 63 V	2222-017-18101	COGECO
	470 µF	2222-017-16471	COGECO
	1000 µF	2222-017-16471	COGECO
NO227	680 à 47000 µF	Felsic 038	SIC SAFCO
	470 µF	Felsic 039	SIC SAFCO
NO242	470 pF	2222-630-03471	COGECO
	820 pF	2222-630-03821	COGECO
	1000 pF	2222-630-03102	COGECO
	1500 pF	2222-630-03152	COGECO
	2200 pF	2222-630-03222	COGECO
	3300 pF	2222-630-03332	COGECO
	4700 pF	GOX 742	LCC
	10000 pF	GOY 753	LCC
	47000 pF	GSY 612	LCC

NO243	68 pF à 470 pF	GIZ 606	LCC
	560 pF à 820 pF	GIZ 608	LCC
	1000 pF à 1800 pF	GIZ 611	LCC
	2200 pF à 3900 pF	GIZ 615	LCC
	4700 pF	GIX 611	LCC
	10000 pF	GIX 615	LCC
NO245	1 pF à 3,9 pF	GOA 604	LCC
	4,7 pF à 6,8 pF	GOC 604	LCC
	8,2 pF à 22 pF	GOC 731	LCC
	27 pF	GOC 742	LCC
	33 pF - 39 pF	GOC 742	LCC
	47 pF - 56 pF	GOU 731	LCC
	68 pF - 82 pF - 100 pF	GOU 742	LCC
	120 pF - 150 pF	GOU 753	LCC
	180 pF - 220 pF - 270 pF	GOU 764	LCC
	330 pF	GOU 765	LCC
NO246	1 pF à 3,3 pF	GUA 606	LCC
	3,9 pF à 6,8 pF	GUP 606	LCC
	8,2 pF à 12 pF	GUP 608	LCC
	15 pF à 22 pF	GUP 611	LCC
	27 pF et 33 pF	GUU 608	LCC
	39 pF à 56 pF	GUU 611	LCC
NO247	100 pF à 3300 pF	PLZ 912 E	LCC
	4700 pF et 5600 pF	PLZ 912 D	LCC
	10 000 pF	PLZ 912 C	LCC
	22 000 pF	PLZ 913 E	LCC
	47 000 pF	PLZ 913 D	LCC
NO248	1 pF à 150 pF	PLA 912 E	LCC
	180 pF - 220 pF	PLA 912 D	LCC
	330 pF - 470 pF	PLC 912 C	LCC
NO249	47 pF	BDBK - 400 V 20% N1500 1B	DRALORIC
	1000 pF	BDBK-400 V-20 + 80% R4000	DRALORIC
NO251	0,001 µF	KEI 210	LCC
	0,01 µF	KEG 213	LCC
	0,1 µF	KEF 218	LCC
	1 µF	KEF 231	LCC
NO263	0,01 µF - 0,022 µF	IFI 013	LCC
	0,047 µF - 0,1 µF	IFG 013	LCC
	0,22 µF	IFG 018	LCC
	0,47 µF	IFG 023	LCC
	1 µF	IFG 031	LCC
	0,1 µF - 400 V	IFI 018	LCC

POTENTIOMETRES

NO314	palier Ø 6 mm	P14 TRA	SFERNICE
	palier Ø 8 mm	P14 XRA	SFERNICE
NO332	montage horizontal	VA05 H	OHMIC
	montage vertical	VA05 V	OHMIC

ABREVIATIONS FOURNISSEURS

AC-PH	Acier Phénix
ACCEL	ACCEL.
ACME	ACME
ADIP	ADIP
ADR	Application du roulement
ADRET	Adret
AEG	AEG Téléfunken
AEMGP	AEMGP
AERTE	Aertech
AGDE	Agde
AGFA	Agfa Gevaert
AGUIL	Aguilar
AIEV	A.I.E.V
AKA	Aka
ALCAT	Alcatel
ALLEN	Allen Bradley
ALTOF	Altoflex
ALTUL	Altulor
AMB-P	AMB Production
A.M.D	A.M.D
AMP	A.M.P
AMPHE	Amphénol
ANDEV	Analog. Dévices
ANSLE	Ansley
ANZAC	Anzac
AP	Angst et Pfister
AP-IN	AP Incorp.
APLIX	Aplix S.A.
APR	APR
APTEX	Aptex
AQ-OR	Aquitaine Organico
ARCAP	Arcap
ARE	A.R.E
ARELC	ARELEC
ARENA	Arena
ARMST	Armstrong
ARNOU	Arnould Electro Industrie
ASO	Aso
ASTRL	Astral
ATC	American Technical Céramics
ATI	A.T.I.
ATO	Ato Plastichimie
ATOMS	Atoms
AUGAT	Augat
AUSTE	Austerlitz Electric
AUXIL	Auxilec
AVDEL	AVDEL
BAEHN	Sté Williau Baeni
BAGJA	Bagajavion
BAHCO	Bahco
BAL	Brossette Alu.
BALL	Ball Brothers Research Corp.
BARNI	Barnier
BASF	BASF
BAUDO	Baudoint Nogent
BB	Burr-Brown
BEAL	Béal
BECKM	Beckman
BECMA	Beckman
BEDEL	Bedel
BEE	Bureau d'Etudes et d'Electronique
BELZE	Belzer
BELZR	Belzer
BENZI	Benzing
BEPRO	Best Products
BERG	Berg Electronics
BLOCH	Bloch
BOHIN	Tréfileries Bohin
BOSTI	Bostik
BOULA	Boulay Marc
BOUR	Précicable-Bour
BOURB	Bourbon et Fils
BOURN	Bourns
BR-LE	Brion-Leroux
BR-RE	Brand Rex
BTR	BTR
BUHLR	Buhler
BURND	Burndy
CML	C.M.L
CA	Cuivres et Alliages
CADDO	Caddock
CAMBI	Cambion
CAMBN	Cambion
CAMLO	Camloc France
CANET	Canetti
CANON	Cannon Electric
CAPI	C.A.P.I
CASBA	Casbar
CASTO	Castolin
CAUBR	Caubère
CEBE	Block Manufacture Cebe
CEF	Cef
CEFIL	Cefilac
CEHES	Cehess
CELDU	Celduc
CELLO	La Cellofibre
CEM	CEM
CEPE	Cie Electronique et Piézoélectrique
CFD	Cie Fse Diagramme
CFE	Cie Fse de l'étain
CFI	Cie Fse des Isolants
CG	Contrôle graphique
CGCT	CGCT
CGS	C.G.S
CHARP	Charpe Frères
CHAUM	Chaume
CHEMC	Chemical Electronique
CHERY	Cherry
CHICA	Chicago Miniatures lamps
CHILL	Chillet
CHROM	Chromex
CIDEC	Cidecou
CK	C et K (Switches)
CLARE	Clare Electronique
CLIMA	Climax France
CLO	Clo Electronique
CMIC	CMIC
COAXC	Coaxco
CODIM	Codima
COFEL	Cofelec
COFRA	Coframap
COGEC	Cogeco
COMAT	Comatel
COMEP	Comepa
COMET	Comet
CONNE	Connectral
CONTE	Contelec
CONTR	Contravès
COPER	Coper
CORCO	Corcom
COREL	Corel
CRC	Enertec St-Etienne
CRELO	Creusot-Loire
CRL	CRL (voir Draloric)
CROUZ	Crouzet
CS-SE	Schlumberger St-Etienne
CSEE	Cie des Signaux d'Entreprises Electriques
CSF	Thomson CSF
CUPRO	Cuprofil
CURTI	Curtis-Instruments
DALE	Dale
DALIC	Dalic
DATEL	Datel
DAU	Dau
DAUT	Daut + Rietz
DAVUM	Davum
DE-CA	Descours et Cabaud
DECEL	Decelect
DELEV	Delevan
DESPL	Desplanques
DEUTC	Deutsch
DEXIO	Dexion Feralco
DIA-N	Dia Nielsen
DICKS	Dickson
DIELA	Diela
DORVI	Dorvit
DPI	Diffusion Prospection Industrie
DR-DI	Drouet-Diamond
DRALD	Draloric
DRALO	Draloric
DRALR	Draloric
DRALW	Draloric
DUPON	Dupont de Nemours
DYNA	Dyna
DZUS	Dzus France
ECC	E.C.C
E-E-E	Europe Electronic Equi.
E-E-V	English Electric Valve
E-S-F	Equipt Scientif. Forézien
EECO	E.E.C.O
EFCIS	Thomson-Efcis
EFCO	EFCO-JM Frankel
EGEE	EGEE
EIMAC	EIMAC
ELCO	Elco
ELECO	Eleco
ELECT	Electrofil
ELF	Elf
ELFIT	Elfit
ELMA	Elma
ENERT	Enertec
EREL	Erel
ERFI	E.R.F.I
ERIBE	Eribe
ERIDI	Eridias
ERIE	Erie Electronics
ERO	Eromet-Ero Tantale
ES-SE	Enertec Schlumberger St-Etienne
ESTC	E.S.T.C
ETRI	Etri
EUROF	Eurofarad
EUROP	Europavia France
FACA	Faca
FACOM	Facom
FAG	FAG Roulements
FAIRC	Fairchild
FAISA	Faisant
FAVA	Favacoutiq
FAYAR	Fayard
FCRAN	Forges de Crans
FGET	F.G.E.T
FI-DI	Fifth Dimension inc.
FIABL	Fiable
FILEC	Fileca
FILOT	Filotex
FIRAD	Firadec
FISCH	Fischer
FL-BE	Flonic-Besançon
FM	FM
FOMOP	Fomop
FONDE	Fondex
FOP	Fop outillage
FRAPI	Frapinox
FRAPP	Frappaz
FRB	FRB Connectron
FRISC	Frischer
GE	Général Electric
GAGGI	Gaggione
GAM	Générale Application des Métaux
GANTO	Gantois
GARIN	Garin
GARRY	Garry
GAUTH	Gauthier J.
GEKA	Geka
GENEL	Général Electric
GENRA	Général Radio France
GI	Général Instrument France
GILFO	Gilby-Fodor
GIOUX	Gioux A.
GOBIN	Gobin Daudé
GORE	Gore
GRAYH	Gray Hill
GRW	G.R.W
GUITE	Guitel Etienne Mobilor
HABIA	Habia S.A
HARRI	Harris
HARTI	Harting
HAUCK	Hauck
HEIMA	Heimann
HEITO	Heito
HELLR	Hellermann France
HENKE	Henkel et Cie
HEYMA	Heyman
HIRSC	Hirschmann
HOFFM	Hoffmann
HONEY	Honeywell Bull
HP	Hewlett Packard
HUFA	Hufa France
HUGON	Hugoniot
HYBRI	Hybrid Systems
IBM	IBM France
ICI	ICI France
IEC	IEC Electronique
IER	I.E.R.
IERC	I.E.R.C
IMPER	Impervia
IMPEX	Impex
IN-SP	Instrument spécialties
INT-C	Inter Composants
INTEL	Intel
INTIL	Intersil
IR	International Rectifiers
IRC	I.R.C (TRW)
ISC	I.S.C.
ISOLA	Isolantite
ISOST	Isostat
ITT	ITT Instruments et Composants
JAC-F	JAC France
JAEGE	Jaeger
JAHNI	Jahnichen
JALU	Jalu
JARDI	Jardiller
JEANR	Jeanrenaud
JEHER	Jeher
JERMY	Jermyn
JFD	JFD Electronics Europe
JOINT	Le Joint Français
JUPIT	Jupiter
KABEL	Kabelmétal
KAUTT	Kautt et Bux
KB	Klar et Beilschmidt
KEMET	Kemet
KEMME	Kemmer (CCI)
KEYST	Keystone (Texmo)
KF	Siceron KF
KMC	K.M.C Semiconductors
KNITT	Knitter Switch
KNOTT	Knott Electronik

KODAK	Kodak-Pathe
KONTR	Kontron
KORUN	Korundal
KVG	K.V.G.
LAFAB	Lafab
LAMBD	Lambda Electronique
LAMRI	Lambert Rivière
LCC	LCC-CICE
LEGRA	Legrand
LEJEU	Lejeune
LERC	Lerc
LETU	Letu
LGC	L.G.C
LIPA	Lipa
LIRE	Lire
LITRO	Litronix
LITTO	Litton
LOG-E	Log-Elec.
LOUPO	Loupot
LPE	Laboratoire Piézoélectricité
LTT	Lignes Télégraphiques Téléphoniques
M/THE	Microtherm
MA-PR	Marlin Prunier
MALLO	Mallory Durancell
MARCO	Marcoussis (Labo de)
MARET	Maret
MAREU	Manuf. réunies St-Chamond
MARGU	Marguet
MARQA	Marquardt
MARQU	Marquardt
MATEL	Matel
MATER	Matéra
MATSU	Matsuo
MAZDA	Mazda
MCB	MCB Alter
MECAG	Mecagis
MECAL	Mecalectro
MECAN	Mecanindus
MEKTR	Mektron
MENTO	Mentor
METAD	Le Métal Déployé
METAF	Métafram
METAL	Métallo
METEX	Metex Electronic
METIN	Metinox
METOX	Metox
MFOEM	MFOEM
MFOM	MFOM
MI-AS	Microwave Associate Inc.
MI-PW	Microcomputer Power
MICRO	Micro
MIM	Manufacture d'Injection Moderne
MINES	Minesota France
MKL	M.K.L
MMT	Manufacture Métallurgique de Tournus
MOB	MOB Outillage
MOLEX	Molex
MONIN	Monin
MONSA	Monsanto
MOSSA	Mossalgue
MOSTK	Mostek
MOTOR	Motorola
MR	Manufactures Réunies St-Chamond
MSI	MSI Electronic
MYRRA	MYRRA
3M	3M (Minesota)
N-CHE	Nippon Chemical Condenser
NA-CH	National Chemsearch
NADEL	Nadella
NATIO	National (AEMGP)
NBPLA	NB Plastique
NEC	Nippon Electric Co Ltd
NEOSI	Néosid
NIC	N.I.C
NOMEL	Nomel
NORWE	Norwe
NOVAC	Novacel
NOVEA	Novea
NS	National Semiconductor
OAK	OAK
ODENW	Odenwalder Kunststoffwerk
OEC	Ouest Electronique Connect.
OHMIC	Ohmic
OLIBO	Olibol
OMRON	Omron
OPELC	Opelec
ORBIT	Orbitec
OREGA	Oréga
OREOR	Oreor
OSRAM	Osram
OTALU	Otalu
PAGNO	Pagnon et Cie
PANDU	Pandu
PASI	Pasi Relais
PAUL	Paul (Maison du caoutchouc)
PAULS	Paulstra
PEREN	Perena
PERMA	Permali
PERRI	Perrière
PHILI	Philips
PI	P.I Condensateurs
PICCE	Piccetto
PIHER	Piher
PINET	Pinet Léon
PLAST	Plastic
PLESS	Plessey-France
PMI	Précision Monolithics Inc.
POBRU	Potter et Brumfield
POLAR	Polaroid
POLYC	Polycinétique
PORTE	Portescap France
PRECI	Précis
PREH	PREH
PROCH	Prochal
PROLA	Prolabo
PRONR	Proner
PROTO	Sté Proteaux
PRUOM	Prud'homme et Fils
PYRAL	Pyral
Q-E	Quartz et Electronique
RADIA	Radiall
RADIO	Radiohm
RAFI	Rafi
RAPID	Rapid S.A.
RAUFI	Raufilam
RAYCH	Raychem
RAYMO	Raymond
RCA	R.C.A.
RECOR	Record
RES	Radio-Electro Sélection
RESIS	Resista
REXOR	Rexor
RHODA	Rhodanienne
RHPOU	Rhone Poulenc
RHPRO	Rhone Progil
RICHC	Richco
RIFA	Rifa
RITZ	Ritz
RMB	RMB
RN	Robinson Nugent Europe
ROE	Roederstein
ROJAC	Rojac
ROSEN	Rosenthal
ROSS	Milton Ross
ROTRO	Rotron
RTC	Radiotechnique Compelec
RUBAN	Le Ruban adhésif
RUBYC	Rubycon
RUSSN	Russenberger
RUWID	Ruwido
S.M.I	S.M.I
SABIR	Sabir
SADAR	Sadar
SAE	Stauford Applied Engineering
SAFT	Saft
SAGOT	Sagot Nicollier
SAM	Forges Stéphanoises
SANDV	Sandvik France
SANEL	Sanel
SAPE	S.A.P.E
SAREL	SAREL
SCH-M	Schlumberger Montrouge
SCHAD	Schadow-Rudolph
SCHAF	Schaffner
SCHUR	Schurter
SDS	SDS
SEALE	Sealectro
SECME	Secme
SECRE	Secre
SEEM	Seem
SEFRA	Sefram
SEG	Solartron
SEGOR	Segor
SERFL	Serflex
SERME	SERM
SES	Ses. Sterling
SESCO	Sescosem
SEUFF	Seuffer
SFERN	Sfernice
SFMI	SFMI Crouzet
SGS	S.G.S
SHIPL	Shipley
SHUGA	Shugart
SI-GE	Silicon Général
SIAM	Siam
SIC	Sic-Safco
SID	Sider
SIDCO	Sidco
SIEME	Siemens
SIEML	Siemelec
SIEMS	Siemens
SIGMA	Sigma instruments inc.
SIGNE	Signetics
SILEC	Silec
SILIC	Siliconix
SIMMO	Simmonds
SINAP	Sinaplast
SINCO	Sincora-Chimie
SINTR	Sintra
SIS	Schlumberger
SIT	SIT
SITEC	SITEC
SKEGA	Skega
SNFA	SNFA
SOCAP	Socapex
SODIL	Sodilec
SODIM	Sodim
SODIS	Sodistrel
SOGIE	Sogie
SOPRA	Sopralor
SOUDU	Soudupin
SOULA	Soulat-Frères
SOURI	Souriau et Cie
SOVCO	Sovcor
SPCE	S.P.C.E
SPECT	Spectrol
SPRAG	Sprague
SRATI	Srati
STAIN	Stainless
STANW	Stanwick
STATE	State of the art inc.
STAUB	Staubli
STETT	Stettner
STGUM	Standard Gum
STOCK	Stockli
SUHNE	Suhner
SWAGE	Swage
SWITC	Switchcraft
SYGMA	Sygma
SYLVA	Sylvania
TA	Tekelec-Airtronic
TCEI	TCEI
TCK	Transrack
TECO	TECO
TEL-L	Tel-Labs
TELED	Télédyne
TELEM	Télémécanique
TELON	Télonic
TEROS	Terosan
TERRO	Terrop
TESA	Tesa
TEXAS	Texas Instruments
TEXMO	Texmo
TEXTO	Textool
TH-PA	Thorn-Panelgrapic
THERM	Thermalloy
THOMA	Thomas
TO-PE	Tole perforée de Maubeuge
TOLKI	Tolkit
TOSHI	Toshiba
TOURA	Toural
TRANM	Transmondial
TREFI	Tréfimétaux Berylco
TRELC	Trélec
TRW	TRW
UDD	UDD-FIM
UGINE	Ugine Kuhlmann
UMBRA	Umbrako
UMD	Usine Métallurgique Doloise
UNIRO	Uniroyal
VAC	VAC
VARO	Varo semi-conductor
VEITH	Veith
VERNE	Verneret
VIBRA	Vibrachoc
VIENO	Viennot
VIGNO	Vignon Choquit
VIRAX	Virax
VISHA	Vishay Micromesures
VITRA	Vitramon
VOGT	Vogt Bauteile
VOLTR	Voltronics
VRN	VRN (= TRW)
WAKEF	Wakefield Engineering
WALBE	Walbern Devices
WARNR	Warner France
WATER	Waterman
WEBER	Weber
WECO	Weco
WELLR	Weller
WICKM	Wickmann
WIMA	Wima
WIRT	Continental Wirt
WONDR	Wonder
WYSS	Wyss René
ZIEHL	Ziehl
ZILOG	Zilog

7 5220 0020 Accessoires

COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
253007001	00	CABLE ACCES CAVALIER DE REPERAGE SES-- 623-003-A
253007002	00	CABLE ACCES CAVALIER DE REPERAGE SES-- 623-003-B
309103016		VIS C M 3 X16 ACIER INOX N6003 NF-E27-115
752200015	00	NOMEN COUVERCLE DE PROTECTION
752270021	00	NOMEN OPTION PRISE ALIM SONDE 5227
752270025	00	NOMEN OPTION COMPTEUR HORAIRE
863541002	02	PARE SOLEIL VISIERE 8X10
879900043	00	VALISE OSCILLOSCOPE
950065010		SONDE 150 MHZ, 1/10, 2M. 50065S COLIN 2P150 " S "
953203000	00	NOMEN SACOCHE 53203

7 5227 0021 Option : prise alimentation sonde

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
	214447439		CONNEC CARRE FIC FEM IC SERT MINI PV BERG- 47649
	233500200		CABLE ORDIN 1C S 0,34 1,3 BLAN FILOT EPDF00
	300120032		CABLA COSSE SOUDER 1 DIR LAITN ETAME MF04- 2003C
	300500010		CABLA LIEN BANDE 2,4 92 NYLON BLAN THOMA TYB23M
	889504051	00	CONNEC BOIT 5 ALVEOLES PRIS DANS 2144 50391
	899200284	00	PLAN DE CABLAGE PRISE LEMO 5220-24-27-77
C 2001	149321002		CAP10000 PF-20+100 63V CERAM 2 N0242
C 2002	149321002		CAP10000 PF-20+100 63V CERAM 2 N0242
J 201	213600016		CONNEC ROND EMBAS HER 4C SOUD JUPIT RA 0 M 4

7 5224 0050

Habillage

COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
301100040	00	RIVET CREUX ROULE 5,8 4 X 4 LAITN
		MFOM- C40X4
301100055	00	RIVET CREUX ROULE 7,3 5,5X 4 LAITN
		MFOM- C55X4
301240070	00	RIVET AVEUG CP 4 X 7,6 ACIER ZING
		N6631 1821 0511 BRIV
301248101	00	RIVET AVEUG 4,8X10,5 ALU
		AVDEL 5141-0627 DRIVE
304004080		RONDEL PLAT 4,2X 8 X 0,5 LAITN NICK
		MFOM- 5
304004121	01	RONDEL PLAT 4,2X12 X 1 ACIER NICK
		MFOM- 10F
304005110	01	RONDEL PLAT 5,2X10 X 1 ACIER NICK
		MFOM- 8 C
304008150	00	RONDEL PLAT 8,5X15 X 0,5 ACIER NICK
		MFOM- 23
304353083		RONDEL ONDUF 8,1X13,8X 0,2 ACIER CARB
		NOMEL 530803 00
310504010	00	VIS F / 90HC M 4 X10 ACIER
		N6063 NF-E27-160
310504012		VIS F / 90HC M 4 X12 ACIER
		N6063 NF-E27-160
314602015		PIED ROND 20 15 PVC NOIR VIS
		FAISA 20-15
835041023	00	COUVERCLE DE POIGNEE SERIE OSCILLOS PORTABLE
835041024	00	COUVERCLE 5032
840014001	01	ECROU SERTI TRAITEMENT M3 16/10 H=3
845014001	00	ENTRETOISE DE POIGNEE 5221
862534039	00	AXE DE POIGNEE SERIE OSCILLOS PORTABLE
867522098	00	PLAQUETTE RENFORT 5032
867522460	00	PLAQUETTE RENFORT 5220-24
869022022MG	00	POIGNEE 5224
869041020	00	POIGNEE 5032
869514011	00	BAGUE DE POIGNEE 5221
877132001	01	RESSORT LAME
887222068MG	00	CAPOT INFERIEUR 5224
887222069MG	00	CAPOT SUPERIEUR 5224

Platines sérigraphiées

866700149	00	PLATINE SYNCHRO FRANCAISE PERSONNALIS. 5220
866700150	00	PLATINE Y VERS. FRANCAISE PERSONNALIS. 5220
866700151	00	PLATINE X VERS. FRANCAISE PERSONNALIS. 5220
866700153	00	PLATINE Y VERS.ANGLAISE PERSONNALISAT. 5220
866700154	00	PLATINE X VERS.ANGLAISE PERSONNALISAT. 5220
866700155	00	PLATINE SYNCHRO ANGLAISE PERSONNALISAT. 5220
867522459	00	PLAQUETTE SUPPORT POUR PLAQUE SIGNAL.SP.

7 5220 0051 Equipement avant

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
	215506001	00	CONNEC ROND EMBAS FEM 1C SOUD BANAN 4 ROUG HIRSC 930176-101 BIL 20
	215506400		CONNEC ROND EMBAS FEM 1C SOUD TEST 4 JEANR 640
	215506400		CONNEC ROND EMBAS FEM 1C SOUD TEST 4 JEANR 640
	304002050		RONDEL PLAT 2,6X 5 X 0,5 LAITN NICK MFOM- 1C
	304002050		RONDEL PLAT 2,6X 5 X 0,5 LAITN NICK MFOM- 1C
	304306010		RONDEL DENTS DE 6 X11,3X 0,7 ACIER INOX N6333 NF-E27-618
	309102506		VIS C M 2,5X 6 ACIER INOX N6003 NF-E27-115
	309102506		VIS C M 2,5X 6 ACIER INOX N6003 NF-E27-115
	31392210o	00	VIS CBL POZ 2,2X 6 AUTO*ACMXC ZN6 PB GOBIN PLAS TCBL POZ N2X6*
	834524005MG	00	COLONNETTE SUPPORT DE CI AFFICHAGE 5224
	863044002	00	PASSE FIL ISOLANT POUR AXE DE 6
	867508158	00	PLAQUETTE LOGOTYPE SERIGRAPHIEE 5220
	869544022	00	CANON POUR AXE DIAMETRE 4M/M
J 0601	215541031		CONNEC ROND EMBAS FEM 1C SOUD TEST 2 ARNOU PBR0401031

7 5220 0053 Equipement de platine

COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
219614516	01	BOUTON ACCESS CAPUCH 14,5 GRIS CLAIR AKA-- W1-301
219614590	01	BOUTON ACCESS CAPUCH 10 GRIS AKA-- W1-201
219614592	01	BOUTON ACCESS CAPUCH 10 ROUG AKA-- W1-203
219621231	01	BOUTON REPERE 4 10 PINCE GRIS CLAIR AKA-- R2-231
219621344	00	BOUTON REPERE 6 15 PINCE GRIS TR 4,2 AKA-- R2-341-02
219621351	01	BOUTON REPERE 6,35 14,5 PINCE GRIS CLAIR AKA-- R2-351-01
219623231	00	BOUTON ORE*RE 4 10 PINCE GRIS AKA-- R4-231
309104010		VIS C M 4 X10 ACIER INOX N6003 NF-E27-115
345074020	00	COLONE ROND 8 X 2 4,3 LAITN NICK ACME- ELL4380-02
752120500	00	NOMEN BOUTON 8 DE T 5212
752200051	00	NOMEMCLATURE EQUIPEMENT AVANT 5220
859541005	00	NEUTRAL POUR TUBE 8X10 STANDARD
877541007	00	CACHE AV DE TUBE 8X10 NOIR SATINE
879032027	00	RONDELLE POUR AXE DIA.6,35 5220-5224

COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
214429041	00	CONNEC LIMAND ACCES BOITIER FEM 4C AV OREIL MOLEX 03-09-1041-1490-R
214811002	00	COMMUT SECT ENSEMBL REPART 6P 1C E.E.E A161
220000501		FUSIBLE RETARD 0,5 A 5 X 20 CEHES D LTD
220001001		FUSIBLE RETARD 1 A 5 X 20 CEHES D LTD
220405002	01	FUSIBLE SUPPRT 5 X 20 BAIONNETTE SCHUR 31 1081
253500007	00	PASFIL BLOCAG 7,6 2,2 NYLON NOIR HEYMA SR-6W-1
301224480	00	RIVET AVEUG CP 2,4X 4,8 ALU AU3G N6611 1131-0306 CHOBERT
304003071		RONDEL PLAT 3,2X 7 X 1 ACIER NICK MFOM- 2D
304004121	01	RONDEL PLAT 4,2X12 X 1 ACIER NICK MFOM- 10F
309104025		VIS C M 4 X25 ACIER INOX N6003 NF-E27-115
313922106	00	VIS CBL POZ 2,2X 6 AUTO*ACMXC ZN6 PB GOBIN PLAS TCBL POZ N2X6*
330032628	01	CABLA BOUCHE TROU 10,35 ACIER PARK PARCO RAYMO 53115
345083300	00	ENTRET HEXA 5,5X30 M 3 LAITN NICK N6718
752207021	00	NOMEMCLATURE Z1 5220
752241041	00	NOMEN CI Z6 5224
841022151MG	00	EQUERRE DE PROTECTION SECTEUR 5224
851042032MG	00	GUIDE CI ALIMENTATION- 5220-5224
861541001	00	AGRAPHE POUR CORDON SECTEUR
864241002	00	PIEDS STANDARD OSCILLOS PORTABLES
867022058	00	PLAQUETTE SIGNALETIQUE VERSION ENERTEC
867022196		ETIQUETTE (25X38) LISTE TELEPHONE AGENCE SAV
867522484	00	PLAQUETTE OBTURATRICE COMPTEUR HORAIRE 5216
868708019MG	00	PLATINE AR SERIGRAPHIEE 5224
876024036MG	00	RADIATEUR ARRIERE 5224
876500002	00	BUTEE CAOUTCHOUC TRAITEMENT 5276

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
J 0301	213206250	00	CONNEC COAX EMBAS FEM 1C SOUD BNC RADIA R 141554- UG 625B/U
J 1901	213206250	00	CONNEC COAX EMBAS FEM 1C SOUD BNC RADIA R 141554- UG 625B/U
J 2001	213206250	00	CONNEC COAX EMBAS FEM 1C SOUD BNC RADIA R 141554- UG 625B/U

7 5224 0400 Tube cathodique

COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
201415122	02	TUB CAT IC RECT 151MM P31 GRAT AEG-T D14-651- GH/112R
214447439		CONNEC CARRE FIC FEM IC SERT MINI PV BERG- 47649
252000301	01	GAINE RETRAC 4,8MM NOIR RAYCH RNF1003/16 NOIR
252000350	01	GAINE RETRAC 3,2MM NOIR RAYCH RNF100 1/8 NOIR
300171820		CABLA COSSE CLIPS SERTI 2,8 LAITN ETAME AMP-- 140 718 2
300608470		CABLA LIEN BANDE 67 ACIER CADM VIS SERFL MINUS 2
304303040	00	RONDEL DENT LOI 3,2X 8,7X 0,5 CUPRO BERYL NOMEL 21030170
310000300		ECROU H M 3 ACIER INOX N6203 NF-E27-411
871512035	00	BLINDAGE DE TUBE CATHODIQUE 5224
871512036	00	BLINDAGE AR DE TUBE CATHODIQUE 5524
873072005	00	PROFILE CAOUTCHOUC 5022
889504050	00	CONNEC BOIT 4 ALVEOLES PRIS DANS 2144 50391

7 5224 0450 Interconnexion châssis

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
	201400031	00	TUB CAT ACCES CABLE + CAPUCHON SILICONE AEG-- 005432LONG 60CM
	214429003	00	CONNEC LIMAND ACCES CONTACT FEM A SERTIR MOLEX 02-09-1103-1189-TL
	214429007	00	CONNEC LIMAND ACCES CONTACT FEM A SERTIR MOLEX 02-09-1118 1381TL
	214447439		CONNEC CARRE FIC FEM IC SERT MINI PV BERG- 47649
	214447439		CONNEC CARRE FIC FEM IC SERT MINI PV BERG- 47649
	233500200		CABLE ORDIN IC S 0,34 1,3 BLAN FILOT EPDF00
	238502000		CABLE ORDIN IC S 0,60 2,5 BLAN MAREU ELECTROAIR NI 19X0,2
	240200050		CABLE COAX IC 50OHM 2 100 PF/M FILOT 50SMD
	241395672	00	CABLE COAX IC 95OHM 3,00 GORE- CSS 512 / NOIR
	241506042		CABLE BLIND 2C S 0,38 4,1 BLAN FILOT 604 2X0,38 G 22 BLC
	250500400		GAINE PVC 4 MM NOIR CFI-- PVC 40/10
	252000116	01	GAINE RETRAC 1,6MM NOIR RAYCH RNF1001/16 NOIR
	253507450		PASFIL ANNEAU 6,1 1,6 POLYE MFOM- 745
	300171820		CABLA COSSE CLIPS SERTI 2,8 LAITN ETAME AMP-- 140 718 2
	300500010		CABLA LIEN BANDE 2,4 92 NYLON BLAN THOMA TYB23M
	300500010		CABLA LIEN BANDE 2,4 92 NYLON BLAN THOMA TYB23M
	309603004		VIS HC M 3 X 4 CUV ACIER N6073 NF-E27-162
	831500156	00	CORDON SECTEUR 2,50M
	859024005	00	MANCHON RACCORD POT 5221
	862524022MG	00	AXE PROLONGATEUR POT - 5220-5224
	889504050	00	CONNEC BOIT 4 ALVEOLES PRIS DANS 2144 50391
	889504055	00	CONNEC BOIT 9 ALVEOLES PRIS DANS 2144 50391
	889600169	00	TRANSFO TA 69370 5220-24 27
R 1501	016401000		RES 100 OHM 5 % 0,25W CARBON NO102

Raccordement électrique et mécanique

COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
201400020	01	TUB CAT ACCES ECLAIR RET AV 2 LAMP 6,3V 40MA AEG-T --TK-5265-AVEC LAMPE
214447439		CONNEC CARRE FIC FEM IC SERT MINI PV BERG- 47649
233500200		CABLE ORDIN IC S 0,34 1,3 BLAN FILOT EPDF00
238502000		CABLE ORDIN IC S 0,60 2,5 BLAN MAREU ELECTROAIR N1 19X0,2
253500202	00	PASFIL OBLONG 43 X29 PCV GRIS SES-- 135-02
300100171	00	CABLA COSSE LANGUETT 2,86 LAITN ETAME MFOM- Y171A
300100171	00	CABLA COSSE LANGUETT 2,86 LAITN ETAME MFOM- Y171A
300100230		CABLA COSSE SOUDER 1 DIR LAITN ETAME MFOM- 5Q
300500010		CABLA LIEN BANDE 2,4 92 NYLON BLAN THOMA TYB23M
301282106	01	RIVET AVEUG CP 3,2X 5,2 ACIER ZING N6631 1821 0406 BRIV
304003060		RONDEL PLAT 3,2X 6 X 0,5 LAITN NICK MFOM- 1
304003060		RONDEL PLAT 3,2X 6 X 0,5 LAITN NICK MFOM- 1
304004080		RONDEL PLAT 4,2X 8 X 0,5 LAITN NICK MFOM- 5
304303010		RONDEL DENTS DE 3 X 6 X 0,4 ACIER INOX N6333 NF-E27-618
304303010		RONDEL DENTS DE 3 X 6 X 0,4 ACIER INOX N6333 NF-E27-618
304303040	00	RONDEL DENT LDI 3,2X 8,7X 0,5 CUPRO BERYL NOMEL 21030170
304304040	01	RONDEL DENT LDI 4 X11,2X 0,6 ACIER CDPB NOMEL 21040112
308003006		VIS C M 3 X 6 PLAST
309103006		VIS C M 3 X 6 ACIER INOX N6003 NF-E27-115
309103006		VIS C M 3 X 6 ACIER INOX N6003 NF-E27-115
309103006		VIS C M 3 X 6 ACIER INOX N6003 NF-E27-115
309103008		VIS C M 3 X 8 ACIER INOX N6003 NF-E27-115
309104010		VIS C M 4 X10 ACIER INOX N6003 NF-E27-115
309203008		VIS F / 90 M 3 X 8 ACIER INOX N6023 NF-E27-113
309303006		VIS F /120 M 3 X 6 ACIER INOX N6024

COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
310000300		ECROU H M 3 ACIER INOX N6203 NF-E27-411
313408400	00	ECROU INSERT M 4 LAITN ETAME ERFI- D1003S
313922106	00	VIS CBL POZ 2,2X 6 AUTO*ACMXC ZN6 PB GOBIN PLAS TCBL POZ N2X6*
345083120	00	ENTRET HEXA 5,5X12 M 3 LAITN NICK N6718
345083300	00	ENTRET HEXA 5,5X30 M 3 LAITN NICK N6718
345093300	00	PILIER HEXA 5 X30 M 3 LAITN NICK N6708
752241032	00	NOMEN CI Z8 5224
752241033	00	NOMEN CI Z9 5224
831134001	00	CENTRAGE PAR VERRIN PIONS
832222031MG	00	CHASSIS PRINCIPAL 5224
832222032MG	00	CHASSIS SUPPORT DE BLINDAGE 5224
841022129MG	00	EQUERRE BLINDAGE CARTE Y 5224
841022145MG	00	EQUERRE DE MISE A LA MASSE PLAT.Y 5224
841022146MG	00	EQUERRE DE MISE A LA MASSE PLAT.X 5224
841022147MG	00	EQUERRE BLINDAGE COTE X 5224
845044015MG	00	ENTRETOISE DE FIXATION CI PA 5224
845134052	00	ENTRETOISE M3 HAUTEUR=28MM
845224001	01	ENTRET CARE
867022050	00	PLAQUETTE AUTO COLLANTE THT 5212B
867522274MG	00	PLAQUETTE DE PROTECTION CI PA 5224
867552020MG	00	PLAQUETTE DE PROTECTION CI DE PA 5224
867552021MG	00	PLAQUETTE DE PROTECTION PRISE DE PA 5224
868241007	00	PLATINE AVANT 5224
877112004		RESSORT DE MASSE POUR CAPOT
877112018	00	RESSORT DE MASSE 5224
889509231	00	CONNECT MOLEX 5BROCHES L=30 5538
889509275	00	CONNECT BARETTE MOLEX RECOUPE 5C-(DORES)

75220 7021 — Circuit Z1 - Carte alimentation

COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION		
690152200	00	LISTING PROGRAMMATION DISQUETTE		5220
752247020	00	NOMENCLATURE CI Z1	5220	5224-27
890100202	00	CI INTEGRE MEMOIRE U25 Z1		5220
890100203	00	CI INTEGRE MEMOIRE U26 Z1		5220

7 5224 7020 — Circuit Z1 (suite)

COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
200240800		SUPP 8C DIL 8 SOUD CU-AL ETAME N2500
200241400		SUPP 14C DIL 14 SOUD CU-AL ETAME N2500
200241600		SUPP 16C DIL 16 SOUD CU-AL ETAME N2500
200250101	00	RADIAT ACCES MICA RECT B 23 TO 126 TO 220 SODIS SA 2030
202290102	00	ACCU ACCES SUPPORT 9V KEYST 1291
214447330		CONNEC CI IMP EMB MAL 1C POST BERG- 47310
214447331		CONNEC CI IMP EMB MAL 1C POST BERG- 47311
220000161		FUSIBLE RETARD 0,16A 5 X 20 CEHES D 1TO
227022013	00	BUS-BAR CI IMP V 1C 15,24 8BR PICO MEKTR M824-07-6
227026007	00	BUS-BAR CI IMP H 2C 20,32-4CI 15,24 PICO MEKTR M822-3-8-6
227026008	00	BUS-BAR CI IMP H 2C 22,86 5CI 17,78 PICO MEKTR M822-4-9-7
233500200		CABLE ORDIN 1C S 0,34 1,3 BLAN FILOT EPDF00
238502000		CABLE ORDIN 1C S 0,60 2,5 BLAN MAREU ELECTROAIR N1 19X0,2
243892501	00	CABLA JUMPER 25C PAS 2,54 L 50,8 NOMEX ANSLE FSN-22A-25
252000180	01	GAINE RETRAC 9,5MM NOIR RAYCH RNF100 3/8 NOIR
300100712		CABLA COSSE CI IMP 1,3 LAITN ETAME MFOM- .Y71B
300101290	01	CABLA COSSE CI IMP PICO 2,8 LAITN ETAME LOUPO E 129/5
300120032		CABLA COSSE SOUDER 1 DIR LAITN ETAME MFOM- 2003C
300171820		CABLA COSSE CLIPS SERTI 2,8 LAITN ETAME AMP-- 140 718 2
300500130		CABLA LIEN BANDE 4,8 186 NYLON BLAN THOMA TY25M
301100304	00	RIVET CREUX ROULE 4,6 3 X 4 LAITN MFOM- C30X4
304303011	00	RONDEL ONDUF 3,2X 6,2X 0,4 ACIER BRUN H NOMEL B520301-00
304303040	00	RONDEL DENT LOI 3,2X 8,7X 0,5 CUPRO BERYL NOMEL 21030170
309102510		VIS C M 2,5X10 ACIER INOX N6003 NF-E27-115
309103008		VIS C M 3 X 8 ACIER INOX N6003 NF-E27-115

7 5224 7020

Circuit Z1 (suite)

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
	652240802	00	SCHEMA ELECTRIQUE ALIM BASSE TENSION 5224
	652240803	00	SCHEMA ELECTRIQUE AMPLI ALLUMAGE 5224
	652240805	00	SCHEMA ELECTRIQUE LOGIQUE 5224
	652240806	00	SCHEMA ELECTRIQUE LOGIQUE Y 5224
	652240807	00	SCHEMA ELECTRIQUE LOGIQUE SYNCHRO 5224
	652240808	00	SCHEMA ELECTRIQUE MEMOIRE 5224
	652240809	00	SCHEMA ELECTRIQUE AMPLI SYNCHRO B1 B2 5224
	752240711		RECAP C1 Z1 5224
	840014001	01	ECROU SERTI TRAITEMENT M3 16/10 H=3
	841022131MG	00	EQUERRE RADIATEUR DE TRANSISTORS 5224
	841112064MG	00	EQUERRE DE BLINDAGE 5224
	857034001	01	PILIER PLOT DE CABLAGE
	879144011	00	RONDELLE ISOLANTE POUR TRANSISTOR STANDARD
B10001	202200901	00	PILE 9 V 0,52AH 6F22 ALCALINE/MANGANESE MALLO MN 1604
C 0001	158221049		CAP 100 MF-10+50 100V CHIMIC SIC-- CMF-FP
C 0002	149211001		CAP 1000 PF 10 % 500V CERAM 2 N0243
C 0003	158224749		CAP 470 MF-10+50 100V CHIMIC SIC-- CMF-FP
C 0004	149104701		CAP 47 PF 5 % 500V CERAM 1 N0246
C 0005	170541001		CAP 1 MF 10 % 250V POLYEST N0263
C 0006	158234719		CAP 4700 MF-10+50 25V CHIMIC SIC-- CMF-FP
C 0007	156808047	00	CAP 47 MF-10+50 10V CHIMIC RAD 508 N0220
C 0008	149010331		CAP 330 PF 5 % 63V CERAM 1 508 N0245
C 0009	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
C 0010	156825047	01	CAP 47 MF-10+50 35V CHIMIC RAD 508 N0220
C 0011	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
C 0012	156826010	01	CAP 10 MF-10+50 35V CHIMIC RAD 508 N0220
C 0013	158241007	00	CAP10000 MF-10+50 10V CHIMIC SIC-- CMF FP
C 0014	149321002		CAP10000 PF-20+100 63V CERAM 2 N0242
C 0015	156808047	00	CAP 47 MF-10+50 10V CHIMIC RAD 508 N0220
C 0016	156826010	01	CAP 10 MF-10+50 35V CHIMIC RAD 508 N0220
C 0017	149104701		CAP 47 PF 5 % 500V CERAM 1 N0246
C 0018	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
C 0019	170521001	01	CAP10000 PF 20 % 250V POLYEST N0263
C 0020	156825047	01	CAP 47 MF-10+50 35V CHIMIC RAD 508 N0220
C 0021	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
C 0022	149324701		CAP47000 PF-20+80 63V CERAM 2 N0242 02
C 0023	170531002		CAP 0,1 MF 10 % 250V POLYEST N0263
C 0024	188304310		CAP10000 PF 20 % 2200V POLYEST RAD EUROF B173R
C 0025	188304310		CAP10000 PF 20 % 2200V POLYEST RAD EUROF B173R
C 0026	147734068	00	CAP 68 PF 10 % 3000V CERAM 1 LCC-- QCU 615
C 0027	188303322	00	CAP22000 PF 20 % 1500V POLYEST RAD EUROF B173R
C 0028	149210101		CAP 100 PF 10 % 500V CERAM 2 N0243
C 0029	170531002		CAP 0,1 MF 10 % 250V POLYEST N0263
C 0030	147736147	00	CAP 470 PF-20+50 3000V CERAM 2 LCC-- QCX 608
C 0031	188304310		CAP10000 PF 20 % 2200V POLYEST RAD EUROF B173R
C 0032	170531002		CAP 0,1 MF 10 % 250V POLYEST N0263
C 0033	147736147	00	CAP 470 PF-20+50 3000V CERAM 2 LCC-- QCX 608
C 0034	170531002		CAP 0,1 MF 10 % 250V POLYEST N0263
C 0035	149000105	00	CAP 1 PF+-0,25P 63V CERAM 1 508 N0245
C 0036	170531002		CAP 0,1 MF 10 % 250V POLYEST N0263

Circuit Z1 (suite)

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
C 0037	170521001	01	CAP10000 PF 20 % 250V POLYEST NO263
C 0038	156808047	00	CAP 47 MF-10+50 10V CHIMIC RAD 508 NO220
C 0039	149414701		CAP 4700 PF-20+50 500V CERAM 2 NO243
C 0040	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
C 0041	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
C 0042	149321002		CAP10000 PF-20+100 63V CERAM 2 NO242
C 0043	149321002		CAP10000 PF-20+100 63V CERAM 2 NO242
C 0044	149321002		CAP10000 PF-20+100 63V CERAM 2 NO242
C 0045	149321002		CAP10000 PF-20+100 63V CERAM 2 NO242
C 0046	149321002		CAP10000 PF-20+100 63V CERAM 2 NO242
C 0047	149321002		CAP10000 PF-20+100 63V CERAM 2 NO242
C 0048	149321002		CAP10000 PF-20+100 63V CERAM 2 NO242
C 0049	156826010	01	CAP 10 MF-10+50 35V CHIMIC RAD 508 NO220
C 0050	149002205	00	CAP 22 PF 5 % 63V CERAM 1 508 NO245
C 0051	149511005	00	CAP 1000 PF 10 % 63V CERAM 2 NO242
C 0052	156837910	00	CAP 1 MF-10+50 63V CHIMIC RAD 254 ITT-- EN 12-35-X
C 0053	149321002		CAP10000 PF-20+100 63V CERAM 2 NO242
C 0054	156826010	01	CAP 10 MF-10+50 35V CHIMIC RAD 508 NO220
C 0055	156826010	01	CAP 10 MF-10+50 35V CHIMIC RAD 508 NO220
C 0056	156808047	00	CAP 47 MF-10+50 10V CHIMIC RAD 508 NO220
C 0057	149001205	00	CAP 12 PF 5 % 63V CERAM 1 508 NO245
C 0058	149010221		CAP 220 PF 5 % 63V CERAM 1 508 NO245
C 0059	149010331		CAP 330 PF 5 % 63V CERAM 1 508 NO245
C 0060	149211201		CAP 1200 PF 10 % 500V CERAM 2 NO243
C 0061	156808047	00	CAP 47 MF-10+50 10V CHIMIC RAD 508 NO220
C 0062	149321002		CAP10000 PF-20+100 63V CERAM 2 NO242
C 0063	149321002		CAP10000 PF-20+100 63V CERAM 2 NO242
C 0064	149321002		CAP10000 PF-20+100 63V CERAM 2 NO242
C 0065	149321002		CAP10000 PF-20+100 63V CERAM 2 NO242
C 0066	156808047	00	CAP 47 MF-10+50 10V CHIMIC RAD 508 NO220
C 0067	149321002		CAP10000 PF-20+100 63V CERAM 2 NO242
C 0068	149000225	00	CAP 2,2 PF+-0,25P 63V CERAM 1 508 NO245
C 0069	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
C 0070	156826010	01	CAP 10 MF-10+50 35V CHIMIC RAD 508 NO220
C 0071	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
C 0072	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
C 0073	149211001		CAP 1000 PF 10 % 500V CERAM 2 NO243
C 0074	149414701		CAP 4700 PF-20+50 500V CERAM 2 NO243
C 0075	149001805	00	CAP 18 PF 5 % 63V CERAM 1 508 NO245
C 0076	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
C 0077	149321002		CAP10000 PF-20+100 63V CERAM 2 NO242
C 0078	149321002		CAP10000 PF-20+100 63V CERAM 2 NO242
C 0079	149010221		CAP 220 PF 5 % 63V CERAM 1 508 NO245
C 0080	149001805	00	CAP 18 PF 5 % 63V CERAM 1 508 NO245
C 0081	149000225	00	CAP 2,2 PF+-0,25P 63V CERAM 1 508 NO245
C 0082	149321002		CAP10000 PF-20+100 63V CERAM 2 NO242
C 0083	149321002		CAP10000 PF-20+100 63V CERAM 2 NO242
C 0084	149321002		CAP10000 PF-20+100 63V CERAM 2 NO242
C 0085	149321002		CAP10000 PF-20+100 63V CERAM 2 NO242
C 0086	149321002		CAP10000 PF-20+100 63V CERAM 2 NO242

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Circuit Z1 (suite)

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
C 0087	156808047	00	CAP 47 MF-10+50 10V CHIMIC RAD 508 N0220
C 0088	156826010	01	CAP 10 MF-10+50 35V CHIMIC RAD 508 N0220
C 0089	149511005	00	CAP 1000 PF 10 % 63V CERAM 2 N0242
C 0090	149321002		CAP10000 PF-20+100 63V CERAM 2 N0242
C 0091	149211001		CAP 1000 PF 10 % 500V CERAM 2 N0243
C 0092	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
C 0093	149001005	00	CAP 10 PF 5 % 63V CERAM 1 508 N0245
C 0094	156826010	01	CAP 10 MF-10+50 35V CHIMIC RAD 508 N0220
C 0095	147111210	00	CAP 1000 PF 20 % 100V CERAM 2 PAV N0247
C 0096	147111210	00	CAP 1000 PF 20 % 100V CERAM 2 PAV N0247
C 0097	147111210	00	CAP 1000 PF 20 % 100V CERAM 2 PAV N0247
C 0098	147111210	00	CAP 1000 PF 20 % 100V CERAM 2 PAV N0247
C 0099	149321002		CAP10000 PF-20+100 63V CERAM 2 N0242
C 0100	149001005	00	CAP 10 PF 5 % 63V CERAM 1 508 N0245
C 0101	149001005	00	CAP 10 PF 5 % 63V CERAM 1 508 N0245
C 0102	147111210	00	CAP 1000 PF 20 % 100V CERAM 2 PAV N0247
C 0103	149321002		CAP10000 PF-20+100 63V CERAM 2 N0242
C 0104	149321002		CAP10000 PF-20+100 63V CERAM 2 N0242
C 0105	156808047	00	CAP 47 MF-10+50 10V CHIMIC RAD 508 N0220
C 0106	149001005	00	CAP 10 PF 5 % 63V CERAM 1 508 N0245
CR0001	200340040	01	DIOD REDRES* 1N4004 *400 V 1,0 A MOTOR INDIC
CR0002	200340040	01	DIOD REDRES* 1N4004 *400 V 1,0 A MOTOR INDIC
CR0003	200340040	01	DIOD REDRES* 1N4004 *400 V 1,0 A MOTOR INDIC
CR0004	200340040	01	DIOD REDRES* 1N4004 *400 V 1,0 A MOTOR INDIC
CR0005	200340040	01	DIOD REDRES* 1N4004 *400 V 1,0 A MOTOR INDIC
CR0006	200340040	01	DIOD REDRES* 1N4004 *400 V 1,0 A MOTOR INDIC
CR0007	200340040	01	DIOD REDRES* 1N4004 *400 V 1,0 A MOTOR INDIC
CR0008	200340040	01	DIOD REDRES* 1N4004 *400 V 1,0 A MOTOR INDIC
CR0009	200340040	01	DIOD REDRES* 1N4004 *400 V 1,0 A MOTOR INDIC
CR0010	200302511	01	DIOD REDRES*BY 251 *200 V 3 A N2041
CR0011	200302511	01	DIOD REDRES*BY 251 *200 V 3 A N2041
CR0012	200302511	01	DIOD REDRES*BY 251 *200 V 3 A N2041
CR0013	200302511	01	DIOD REDRES*BY 251 *200 V 3 A N2041
CR0014	200400103		DIOD ZENER *ZPY 10 * 10 V 50 MA ITT-- INDIC
CR0015	200302511	01	DIOD REDRES*BY 251 *200 V 3 A N2041
CR0016	200302511	01	DIOD REDRES*BY 251 *200 V 3 A N2041
CR0017	200302511	01	DIOD REDRES*BY 251 *200 V 3 A N2041
CR0018	200302511	01	DIOD REDRES*BY 251 *200 V 3 A N2041
CR0019	200344480	01	DIOD SPCIAL* 1N4448 * 75 V SWITC TEXAS INDIC
CR0020	200344480	01	DIOD SPCIAL* 1N4448 * 75 V SWITC TEXAS INDIC
CR0021	200344480	01	DIOD SPCIAL* 1N4448 * 75 V SWITC TEXAS INDIC
CR0022	200340040	01	DIOD REDRES* 1N4004 *400 V 1,0 A MOTOR INDIC
CR0023	200305130	01	DIOD REDRES*EM 513 * 1,6K 1 A ITT--
CR0024	200305130	01	DIOD REDRES*EM 513 * 1,6K 1 A ITT--
CR0025	200305130	01	DIOD REDRES*EM 513 * 1,6K 1 A ITT--
CR0026	200305130	01	DIOD REDRES*EM 513 * 1,6K 1 A ITT--
CR0027	200340040	01	DIOD REDRES* 1N4004 *400 V 1,0 A MOTOR INDIC
CR0028	200340040	01	DIOD REDRES* 1N4004 *400 V 1,0 A MOTOR INDIC
CR0029	200305130	01	DIOD REDRES*EM 513 * 1,6K 1 A ITT--
CR0030	200305130	01	DIOD REDRES*EM 513 * 1,6K 1 A ITT--

Circuit Z1 (suite)

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION							
CR0031	200455220	01	DIOD	ZENER	*BZX 55	* 22	V	5,0MA		
				SESCO	INDIC					
CR0032	200344480	01	DIOD	SPCIAL*	1N4448	* 75	V			SWITC
				TEXAS	INDIC					
CR0033	200344480	01	DIOD	SPCIAL*	1N4448	* 75	V			SWITC
				TEXAS	INDIC					
CR0034	200344480	01	DIOD	SPCIAL*	1N4448	* 75	V			SWITC
				TEXAS	INDIC					
CR0035	200340040	01	DIOD	REDRES*	1N4004	*400	V	1,0 A		
				MOTOR	INDIC					
CR0036	200344480	01	DIOD	SPCIAL*	1N4448	* 75	V			SWITC
				TEXAS	INDIC					
CR0037	200403690	00	DIOD	ZENER	*ESM369-1,5V*	1,5V		5 MA		
				SESCO						
CR0038	200344480	01	DIOD	SPCIAL*	1N4448	* 75	V			SWITC
				TEXAS	INDIC					
CR0039	200344480	01	DIOD	SPCIAL*	1N4448	* 75	V			SWITC
				TEXAS	INDIC					
CR0040	200344480	01	DIOD	SPCIAL*	1N4448	* 75	V			SWITC
				TEXAS	INDIC					
CR0041	200344480	01	DIOD	SPCIAL*	1N4448	* 75	V			SWITC
				TEXAS	INDIC					
CR0042	200344480	01	DIOD	SPCIAL*	1N4448	* 75	V			SWITC
				TEXAS	INDIC					
CR0043	200344480	01	DIOD	SPCIAL*	1N4448	* 75	V			SWITC
				TEXAS	INDIC					
CR0044	200340040	01	DIOD	REDRES*	1N4004	*400	V	1,0 A		
				MOTOR	INDIC					
CR0045	200344480	01	DIOD	SPCIAL*	1N4448	* 75	V			SWITC
				TEXAS	INDIC					
CR0046	200344480	01	DIOD	SPCIAL*	1N4448	* 75	V			SWITC
				TEXAS	INDIC					
CR0047	200344480	01	DIOD	SPCIAL*	1N4448	* 75	V			SWITC
				TEXAS	INDIC					
CR0048	200344480	01	DIOD	SPCIAL*	1N4448	* 75	V			SWITC
				TEXAS	INDIC					
CR0049	200344480	01	DIOD	SPCIAL*	1N4448	* 75	V			SWITC
				TEXAS	INDIC					
CR0050	200344480	01	DIOD	SPCIAL*	1N4448	* 75	V			SWITC
				TEXAS	INDIC					
CR0051	200344480	01	DIOD	SPCIAL*	1N4448	* 75	V			SWITC
				TEXAS	INDIC					
CR0052	200344480	01	DIOD	SPCIAL*	1N4448	* 75	V			SWITC
				TEXAS	INDIC					
CR0053	200344480	01	DIOD	SPCIAL*	1N4448	* 75	V			SWITC
				TEXAS	INDIC					
CR0054	200344480	01	DIOD	SPCIAL*	1N4448	* 75	V			SWITC
				TEXAS	INDIC					
CR0055	200344480	01	DIOD	SPCIAL*	1N4448	* 75	V			SWITC
				TEXAS	INDIC					

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION							
CR0056	200344480	01	DIOD	SPCIAL*	1N4448	* 75	V			SWITC
				TEXAS	INDIC					
CR0057	200344480	01	DIOD	SPCIAL*	1N4448	* 75	V			SWITC
				TEXAS	INDIC					
CR0058	200344480	01	DIOD	SPCIAL*	1N4448	* 75	V			SWITC
				TEXAS	INDIC					
CR0059	200344480	01	DIOD	SPCIAL*	1N4448	* 75	V			SWITC
				TEXAS	INDIC					
CR0060	200344480	01	DIOD	SPCIAL*	1N4448	* 75	V			SWITC
				TEXAS	INDIC					
CR0061	200342440	01	DIOD	SPCIAL*	1N4244	* 20	V			SWITC
				SESCO	INDIC					
CR0062	200403690	00	DIOD	ZENER	*ESM369-1,5V*	1,5V		5 MA		
				SESCO						
CR0063	200403690	00	DIOD	ZENER	*ESM369-1,5V*	1,5V		5 MA		
				SESCO						
CR0064	200342440	01	DIOD	SPCIAL*	1N4244	* 20	V			SWITC
				SESCO	INDIC					
CR0065	200342440	01	DIOD	SPCIAL*	1N4244	* 20	V			SWITC
				SESCO	INDIC					
CR0066	200342440	01	DIOD	SPCIAL*	1N4244	* 20	V			SWITC
				SESCO	INDIC					
CR0067	200342440	01	DIOD	SPCIAL*	1N4244	* 20	V			SWITC
				SESCO	INDIC					
CR0068	200342440	01	DIOD	SPCIAL*	1N4244	* 20	V			SWITC
				SESCO	INDIC					
CR0069	200342440	01	DIOD	SPCIAL*	1N4244	* 20	V			SWITC
				SESCO	INDIC					
CR0070	200342440	01	DIOD	SPCIAL*	1N4244	* 20	V			SWITC
				SESCO	INDIC					
CR0071	200342440	01	DIOD	SPCIAL*	1N4244	* 20	V			SWITC
				SESCO	INDIC					
CR0072	200342440	01	DIOD	SPCIAL*	1N4244	* 20	V			SWITC
				SESCO	INDIC					
CR0073	200342440	01	DIOD	SPCIAL*	1N4244	* 20	V			SWITC
				SESCO	INDIC					
CR0074	200342440	01	DIOD	SPCIAL*	1N4244	* 20	V			SWITC
				SESCO	INDIC					
CR0075	200342440	01	DIOD	SPCIAL*	1N4244	* 20	V			SWITC
				SESCO	INDIC					
CR0076	200342440	01	DIOD	SPCIAL*	1N4244	* 20	V			SWITC
				SESCO	INDIC					
CR0077	200342440	01	DIOD	SPCIAL*	1N4244	* 20	V			SWITC
				SESCO	INDIC					
CR0078	200342440	01	DIOD	SPCIAL*	1N4244	* 20	V			SWITC
				SESCO	INDIC					
CR0079	200342440	01	DIOD	SPCIAL*	1N4244	* 20	V			SWITC
				SESCO	INDIC					
CR0080	200342440	01	DIOD	SPCIAL*	1N4244	* 20	V			SWITC
				SESCO	INDIC					

Circuit Z1 (suite)

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION	
CR0081	200403690	00	DIOD ZENER *ESM369-1,5V* 1,5V 5 MA SESCO	
CR0082	200403690	00	DIOD ZENER *ESM369-1,5V* 1,5V 5 MA SESCO	
CR0083	200344480	01	DIOD SPCIAL* 1N4448 * 75 V TEXAS INDIC	SWITC
CR0084	200400103		DIOD ZENER *ZPY 10 * 10 V 50 MA ITT-- INDIC	
CR0085	200344480	01	DIOD SPCIAL* 1N4448 * 75 V TEXAS INDIC	SWITC
CR0086	200344480	01	DIOD SPCIAL* 1N4448 * 75 V TEXAS INDIC	SWITC
CR0087	200344480	01	DIOD SPCIAL* 1N4448 * 75 V TEXAS INDIC	SWITC
CR0088	200344480	01	DIOD SPCIAL* 1N4448 * 75 V TEXAS INDIC	SWITC
CR0089	200344480	01	DIOD SPCIAL* 1N4448 * 75 V TEXAS INDIC	SWITC
CR0090	200344480	01	DIOD SPCIAL* 1N4448 * 75 V TEXAS INDIC	SWITC
DS0001	201506501	00	VOYANT AMPOUL NEON 65V FIL ORBIT N76530	
DS0002	201506501	00	VOYANT AMPOUL NEON 65V FIL ORBIT N76530	
F 0001	220404002	00	FUSIBLE SUPPRT SOCLE 5 X 20 CASBA CSPF 2	PICO
J 0001	214421035	00	CONNEC CI IMP EMB FEM 3C PICO MOLEX 26-11-6035 3215-3BH	396
J 0002	214421033	01	CONNEC CI IMP EMB FEM 3C SOUD PAS MOLEX 38-00-1333 4455C/AAA	254
J 0003	214421033	01	CONNEC CI IMP EMB FEM 3C SOUD PAS MOLEX 38-00-1333 4455C/AAA	254
J 0004	214421033	01	CONNEC CI IMP EMB FEM 3C SOUD PAS MOLEX 38-00-1333 4455C/AAA	254
J 0005	214421033	01	CONNEC CI IMP EMB FEM 3C SOUD PAS MOLEX 38-00-1333 4455C/AAA	254
J 0006	214421106	00	CONNEC CI IMP EMB FEM 10C PICO MOLEX 26-11-6104 3215-10AH	396
J 0007	214421106	00	CONNEC CI IMP EMB FEM 10C PICO MOLEX 26-11-6104 3215-10AH	396
J 0008	214421106	00	CONNEC CI IMP EMB FEM 10C PICO MOLEX 26-11-6104 3215-10AH	396
J 0009	214421058	00	CONNEC CI IMP EMB FEM 5C PICO C/DORE MOLEX 26-11-6051 3215-5AHG	396
J 0010	214421058	00	CONNEC CI IMP EMB FEM 5C PICO C/DORE MOLEX 26-11-6051 3215-5AHG	396
J 0011	214421106	00	CONNEC CI IMP EMB FEM 10C PICO MOLEX 26-11-6104 3215-10AH	396
J 0012	214421070	00	CONNEC CI IMP EMB MAL 7C PICO MOLEX 26-11-6075 3215-7BH	396

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION	
J 0013	214422051	00	CONNEC CI IMP EMB FEM 5C PICO MOLEX 10-02-1052 3002-5B	508
L 0001	212600100	01	ACCES MAGN PERLE 3,7X1,2X3,5-4A1 RTC-- 4322-020- 34410	FEROX
L 0002	212600100	01	ACCES MAGN PERLE 3,7X1,2X3,5-4A1 RTC-- 4322-020- 34410	FEROX
L 0003	212600100	01	ACCES MAGN PERLE 3,7X1,2X3,5-4A1 RTC-- 4322-020- 34410	FEROX
Q 0001	200104920	00	TRANST LP SI P*BF 492 * MOTOR	TO 92
Q 0002	200101840	01	TRANST LP SI N*BC 184 * N2081 INDIC	X 55
Q 0003	200102142	01	TRANST LP SI P*BC 214 * N2081 INDIC	X 55
Q 0004	200102423	01	TRANST HP SI P*BD 242C * SESCO INDIC	TO 220
Q 0005	200108060	00	TRANST HP SI P*BD 806 * MOTOR	TO 220
Q 0006	200101840	01	TRANST LP SI N*BC 184 * N2081 INDIC	X 55
Q 0007	200108050	00	TRANST HP SI N*BD 805 * MOTOR	TO 220
Q 0008	200102411	01	TRANST HP SI N*BD 241A * N2085 INDIC	TO 220
Q 0009	270102410	00	TRANST TRI DE L BD 241A	/200102411
Q 0010	200123693	00	TRANST LP SI N*MPS 2369 * MOTOR	TO 92
Q 0011	200123693	00	TRANST LP SI N*MPS 2369 * MOTOR	TO 92
Q 0012	200123693	00	TRANST LP SI N*MPS 2369 * MOTOR	TO 92
Q 0013	200123693	00	TRANST LP SI N*MPS 2369 * MOTOR	TO 92
Q 0014	200155510	00	TRANST LP SI N*2N 5551 * MOTOR	TO 92
Q 0015	200154010	00	TRANST LP SI P*2N 5401 * MOTOR	TO 92
Q 0016	200155510	00	TRANST LP SI N*2N 5551 * MOTOR	TO 92
Q 0017	200104920	00	TRANST LP SI P*BF 492 * MOTOR	TO 92
Q 0018	200103920	02	TRANST HP SI N*BF 392 * MOTOR	TO 92
Q 0019	200103920	02	TRANST HP SI N*BF 392 * MOTOR	TO 92
Q 0020	200103920	02	TRANST HP SI N*BF 392 * MOTOR	TO 92
Q 0021	200101840	01	TRANST LP SI N*BC 184 * N2081 INDIC	X 55

Circuit Z1 (suite)

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
Q 0022	200102142	01	TRANST LP SI P*BC 214 * X 55 N2081 INDIC
Q 0023	200101840	01	TRANST LP SI N*BC 184 * X 55 N2081 INDIC
Q 0024	200101840	01	TRANST LP SI N*BC 184 * X 55 N2081 INDIC
Q 0025	200123693	00	TRANST LP SI N*MPS 2369 * TO 92 MOTOR
Q 0026	200142581	00	TRANST LP SI P*PN 4258 * TO 92 NS--- INDIC
Q 0027	200102142	01	TRANST LP SI P*BC 214 * X 55 N2081 INDIC
Q 0028	200102142	01	TRANST LP SI P*BC 214 * X 55 N2081 INDIC
Q 0029	200102142	01	TRANST LP SI P*BC 214 * X 55 N2081 INDIC
Q 0030	200102142	01	TRANST LP SI P*BC 214 * X 55 N2081 INDIC
Q 0031	200123693	00	TRANST LP SI N*MPS 2369 * TO 92 MOTOR
Q 0032	200142581	00	TRANST LP SI P*PN 4258 * TO 92 NS--- INDIC
Q 0033	200142581	00	TRANST LP SI P*PN 4258 * TO 92 NS--- INDIC
Q 0034	200142581	00	TRANST LP SI P*PN 4258 * TO 92 NS--- INDIC
Q 0035	200142581	00	TRANST LP SI P*PN 4258 * TO 92 NS--- INDIC
Q 0036	200142581	00	TRANST LP SI P*PN 4258 * TO 92 NS--- INDIC
Q 0037	200142581	00	TRANST LP SI P*PN 4258 * TO 92 NS--- INDIC
Q 0038	200142581	00	TRANST LP SI P*PN 4258 * TO 92 NS--- INDIC
Q 0039	200142581	00	TRANST LP SI P*PN 4258 * TO 92 NS--- INDIC
Q 0040	200104410	00	TRANST EC SI N*U 441 * TO 71 SILIC
Q 0041	200123693	00	TRANST LP SI N*MPS 2369 * TO 92 MOTOR
Q 0042	200102142	01	TRANST LP SI P*BC 214 * X 55 N2081 INDIC
Q 0043	200142581	00	TRANST LP SI P*PN 4258 * TO 92 NS--- INDIC
Q 0044	200123693	00	TRANST LP SI N*MPS 2369 * TO 92 MOTOR
Q 0045	200104490	01	TRANST LP SI P*BFQ 52 * TO 72 N2082
Q 0046	200142581	00	TRANST LP SI P*PN 4258 * TO 92 NS--- INDIC
Q 0047	200101840	01	TRANST LP SI N*BC 184 * X 55 N2081 INDIC
Q 0048	200123693	00	TRANST LP SI N*MPS 2369 * TO 92 MOTOR
Q 0049	200142581	00	TRANST LP SI P*PN 4258 * TO 92 NS--- INDIC
Q 0050	200142581	00	TRANST LP SI P*PN 4258 * TO 92 NS--- INDIC
Q 0051	200123693	00	TRANST LP SI N*MPS 2369 * TO 92 MOTOR
Q 0052	200142581	00	TRANST LP SI P*PN 4258 * TO 92 NS--- INDIC
R 0001	016400470		RES 47 OHM 5 % 0,25W CARBON N0102
R 0002	041321300		RES 130 K 1 % 0,25W METAL 50 PPM N0112
R 0003	041321180		RES 118 K 1 % 0,25W METAL 50 PPM N0112
R 0004	016420270		RES 27 K 5 % 0,25W CARBON N0102
R 0005	041321300		RES 130 K 1 % 0,25W METAL 50 PPM N0112
R 0006	016700015	00	RES 1,5 OHM 5 % 0,5 W CARBON N0106
R 0007	041320100		RES 10 K 1 % 0,25W METAL 50 PPM N0112
R 0008	016710240		RES 2,4 K 5 % 0,5 W CARBON N0106
R 0009	016410200		RES 2,0 K 5 % 0,25W CARBON N0102
R 0010	041310301		RES 3,01 K 1 % 0,25W METAL 50 PPM N0112
R 0011	083703822		RES 0,22 OHM 5 % 1 W BOBINE GEKA- 638
R 0012	105911004		POT 1 K 20%A CER TRIM PLAQ HOR CI OHMIC VA05 H
R 0013	041310301		RES 3,01 K 1 % 0,25W METAL 50 PPM N0112
R 0014	041320100		RES 10 K 1 % 0,25W METAL 50 PPM N0112
R 0015	041320200		RES 20 K 1 % 0,25W METAL 50 PPM N0112
R 0016	041320100		RES 10 K 1 % 0,25W METAL 50 PPM N0112
R 0017	016410100	00	RES 1,0 K 5 % 0,25W CARBON N0102
R 0018	016402000		RES 200 OHM 5 % 0,25W CARBON N0102
R 0019	016410120		RES 1,2 K 5 % 0,25W CARBON N0102

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Circuit Z1 (suite)

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
R 0020	016400430		RES 43 OHM 5 % 0,25W CARBON NO102
R 0021	041320100		RES 10 K 1 % 0,25W METAL 50 PPM NO112
R 0022	016420270		RES 27 K 5 % 0,25W CARBON NO102
R 0023	041320100		RES 10 K 1 % 0,25W METAL 50 PPM NO112
R 0024	016410100	00	RES 1,0 K 5 % 0,25W CARBON NO102
R 0025	041320866	00	RES 86,6 K 1 % 0,25W METAL 50 PPM NO112
R 0026	105400322	01	POT 22 K 20%A CAR TRIM PLAQ HOR CI PIHER PT10 LV
R 0027	016420300		RES 30 K 5 % 0,25W CARBON NO102
R 0028	016423300		RES 330 K 5 % 0,25W CARBON NO102
R 0029	016405600		RES 560 OHM 5 % 0,25W CARBON NO102
R 0030	016400018		RES 1,8 OHM 5 % 0,25W CARBON NO102
R 0031	016420100		RES 10 K 5 % 0,25W CARBON NO102
R 0032	068100633	00	RES 33 M 5 % 0,5 W METAL RTC-- VR 37
R 0033	068100633	00	RES 33 M 5 % 0,5 W METAL RTC-- VR 37
R 0034	016710100		RES 1,0 K 5 % 0,5 W CARBON NO106
R 0035	016420470		RES 47 K 5 % 0,25W CARBON NO102
R 0036	105400422	00	POT 220 K 20%A CAR TRIM PLAQ HOR CI PIHER PT10 LV
R 0037	016420470		RES 47 K 5 % 0,25W CARBON NO102
R 0038	016402000		RES 200 OHM 5 % 0,25W CARBON NO102
R 0039	016410120		RES 1,2 K 5 % 0,25W CARBON NO102
R 0040	016420680		RES 68 K 5 % 0,25W CARBON NO102
R 0041	041320182		RES 18,2 K 1 % 0,25W METAL 50 PPM NO112
R 0042	041307500		RES 750 OHM 1 % 0,25W METAL 50 PPM NO112
R 0043	041302150		RES 215 OHM 1 % 0,25W METAL 50 PPM NO112
R 0044	041310392		RES 3,92 K 1 % 0,25W METAL 50 PPM NO112
R 0045	016400100		RES 10 OHM 5 % 0,25W CARBON NO102
R 0046	016710220		RES 2,2 K 5 % 0,5 W CARBON NO106
R 0047	016420300		RES 30 K 5 % 0,25W CARBON NO102
R 0048	016410470		RES 4,7 K 5 % 0,25W CARBON NO102
R 0049	041310301		RES 3,01 K 1 % 0,25W METAL 50 PPM NO112
R 0050	016410100	00	RES 1,0 K 5 % 0,25W CARBON NO102
R 0051	897500313	00	POTC DBCS 470KAV+2,2KAR 20%A CI RUWID 0810-300
R 0052	016422200		RES 220 K 5 % 0,25W CARBON NO102
R 0053	105400522	00	POT 2,2M 20%A CAR TRIM PLAQ HOR CI PIHER PT10 LV
R 0054	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0055	897500311	00	POTC 220K 20%A CI RUWID 0502-301
R 0056	016431000		RES 1,0 M 5 % 0,25W CARBON NO102
R 0057	016401000		RES 100 OHM 5 % 0,25W CARBON NO102
R 0058	016431000		RES 1,0 M 5 % 0,25W CARBON NO102
R 0059	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0060	016420360		RES 36 K 5 % 0,25W CARBON NO102
R 0061	016420300		RES 30 K 5 % 0,25W CARBON NO102
R 0062	016420360		RES 36 K 5 % 0,25W CARBON NO102
R 0063	016420510		RES 51 K 5 % 0,25W CARBON NO102
R 0064	068100633	00	RES 33 M 5 % 0,5 W METAL RTC-- VR 37
R 0065	016732000		RES 2,0 M 5 % 0,50W CARBON NO106
R 0066	016420470		RES 47 K 5 % 0,25W CARBON NO102
R 0067	105410222	00	POT 2,2K 20%A CAR TRIM PLAQ VER CI PIHER PT10MWHISI AXE 5012
R 0068	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0069	016421000		RES 100 K 5 % 0,25W CARBON NO102

Circuit Z1 (suite)

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
R 0070	016400100		RES 10 OHM 5 % 0,25W CARBON NO102
R 0071	016400100		RES 10 OHM 5 % 0,25W CARBON NO102
R 0072	016431000		RES 1,0 M 5 % 0,25W CARBON NO102
R 0073	016400100		RES 10 OHM 5 % 0,25W CARBON NO102
R 0074	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0075	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0076	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0077	041304990		RES 499 OHM 1 % 0,25W METAL 50 PPM NO112
R 0078	041310100		RES 1 K 1 % 0,25W METAL 50 PPM NO112
R 0079	016423100		RES 10 K 5 % 0,25W CARBON NO102
R 0080	016431000		RES 1,0 M 5 % 0,25W CARBON NO102
R 0081	016425100		RES 510 K 5 % 0,25W CARBON NO102
R 0082	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0083	016410100	00	RES 1,0 K 5 % 0,25W CARBON NO102
R 0084	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0085	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0086	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0087	041310150		RES 1,5 K 1 % 0,25W METAL 50 PPM NO112
R 0088	016420100		RES 10 K 5 % 0,25W CARBON NO102
R 0089	016431000		RES 1,0 M 5 % 0,25W CARBON NO102
R 0090	016410510		RES 5,1 K 5 % 0,25W CARBON NO102
R 0091	016420510		RES 51 K 5 % 0,25W CARBON NO102
R 0092	016410160		RES 1,6 K 5 % 0,25W CARBON NO102
R 0093	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0094	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0095	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0096	041310200		RES 2 K 1 % 0,25W METAL 50 PPM NO112
R 0097	016410330		RES 3,3 K 5 % 0,25W CARBON NO102
R 0098	016410100	00	RES 1,0 K 5 % 0,25W CARBON NO102
R 0099	041310392		RES 3,92 K 1 % 0,25W METAL 50 PPM NO112
R 0100	016410470		RES 4,7 K 5 % 0,25W CARBON NO102
R 0101	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0102	016410100	00	RES 1,0 K 5 % 0,25W CARBON NO102
R 0103	016410510		RES 5,1 K 5 % 0,25W CARBON NO102
R 0104	016420100		RES 10 K 5 % 0,25W CARBON NO102
R 0105	016410330		RES 3,3 K 5 % 0,25W CARBON NO102
R 0106	016400750		RES 75 OHM 5 % 0,25W CARBON NO102
R 0107	041320137		RES 13,7 K 1 % 0,25W METAL 50 PPM NO112
R 0108	016410200		RES 2,0 K 5 % 0,25W CARBON NO102
R 0109	016732400		RES 2,4 M 5 % 0,5 W CARBON NO106
R 0110	041320133		RES 13,3 K 1 % 0,25W METAL 50 PPM NO112
R 0111	041304870		RES 487 OHM 1 % 0,25W METAL 50 PPM NO112
R 0112	016400100		RES 10 OHM 5 % 0,25W CARBON NO102
R 0113	016400100		RES 10 OHM 5 % 0,25W CARBON NO102
R 0114	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0115	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0116	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0117	016431000		RES 1,0 M 5 % 0,25W CARBON NO102
R 0118	016410330		RES 3,3 K 5 % 0,25W CARBON NO102
R 0119	016410100	00	RES 1,0 K 5 % 0,25W CARBON NO102

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Circuit Z1 (suite)

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
R 0120	016402200		RES 220 OHM 5 % 0,25W CARBON NO102
R 0121	016410200		RES 2,0 K 5 % 0,25W CARBON NO102
R 0122	016410200		RES 2,0 K 5 % 0,25W CARBON NO102
R 0123	041309090		RES 909 OHM 1 % 0,25W METAL 50 PPM NO112
R 0124	016410200		RES 2,0 K 5 % 0,25W CARBON NO102
R 0125	016420100		RES 10 K 5 % 0,25W CARBON NO102
R 0126	016410330		RES 3,3 K 5 % 0,25W CARBON NO102
R 0127	016401000		RES 100 OHM 5 % 0,25W CARBON NO102
R 0128	041320100		RES 10 K 1 % 0,25W METAL 50 PPM NO112
R 0129	016404700		RES 470 OHM 5 % 0,25W CARBON NO102
R 0130	016410120		RES 1,2 K 5 % 0,25W CARBON NO102
R 0131	016402000		RES 200 OHM 5 % 0,25W CARBON NO102
R 0132	016410100	00	RES 1,0 K 5 % 0,25W CARBON NO102
R 0133	041303650		RES 365 OHM 1 % 0,25W METAL 50 PPM NO112
R 0134	016420100		RES 10 K 5 % 0,25W CARBON NO102
R 0135	016420470		RES 47 K 5 % 0,25W CARBON NO102
R 0136	016422200		RES 220 K 5 % 0,25W CARBON NO102
R 0137	041307680		RES 768 OHM 1 % 0,25W METAL 50 PPM NO112
R 0138	041310732	00	RES 7,32 K 1 % 0,25W METAL 50 PPM NO112
R 0139	016405100		RES 510 OHM 5 % 0,25W CARBON NO102
R 0140	041310576		RES 5,76 K 1 % 0,25W METAL 50 PPM NO112
R 0141	016420100		RES 10 K 5 % 0,25W CARBON NO102
R 0143	016405100		RES 510 OHM 5 % 0,25W CARBON NO102
R 0144	016401500		RES 150 OHM 5 % 0,25W CARBON NO102
R 0145	041305760		RES 576 OHM 1 % 0,25W METAL 50 PPM NO112

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
R 0146	016405100		RES 510 OHM 5 % 0,25W CARBON NO102
R 0147	016401500		RES 150 OHM 5 % 0,25W CARBON NO102
R 0148	041309090		RES 909 OHM 1 % 0,25W METAL 50 PPM NO112
R 0150	041310169		RES 1,69 K 1 % 0,25W METAL 50 PPM NO112
R 0151	016405100		RES 510 OHM 5 % 0,25W CARBON NO102
R 0152	041310169		RES 1,69 K 1 % 0,25W METAL 50 PPM NO112
R 0155	016420470		RES 47 K 5 % 0,25W CARBON NO102
R 0156	016431000		RES 1,0 M 5 % 0,25W CARBON NO102
R 0157	016431000		RES 1,0 M 5 % 0,25W CARBON NO102
R 0158	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0159	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0160	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0161	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0162	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0163	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0164	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0165	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0166	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0167	016410100	00	RES 1,0 K 5 % 0,25W CARBON NO102
R 0168	016420470		RES 47 K 5 % 0,25W CARBON NO102
R 0169	016407500		RES 750 OHM 5 % 0,25W CARBON NO102
R 0172	016410200		RES 2,0 K 5 % 0,25W CARBON NO102
R 0173	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0174	016420100		RES 10 K 5 % 0,25W CARBON NO102
R 0175	016420100		RES 10 K 5 % 0,25W CARBON NO102

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Circuit Z1 (suite)

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
R 0176	016420100		RES 10 K 5 % 0,25W CARBON NO102
R 0177	016410200		RES 2,0 K 5 % 0,25W CARBON NO102
R 0178	016410150		RES 1,5 K 5 % 0,25W CARBON NO102
R 0179	016420100		RES 10 K 5 % 0,25W CARBON NO102
R 0180	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0181	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0182	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0183	035203110		RES 100 OHM 5 % 0,12W METAL 100 PPM NO101
R 0184	035203110		RES 100 OHM 5 % 0,12W METAL 100 PPM NO101
R 0185	035203110		RES 100 OHM 5 % 0,12W METAL 100 PPM NO101
RR0001	087810470	00	RESEAU RES 100 K 7 2 % IDEN SIL 8 NO190
RR0002	087813340	00	RESEAU RES 10 K 4 2 % IDEN SIL 8 SFERN SIL8-4
RR0003	087813340	00	RESEAU RES 10 K 4 2 % IDEN SIL 8 SFERN SIL8-4
RR0004	087810470	00	RESEAU RES 100 K 7 2 % IDEN SIL 8 NO190
RR0005	087813340	00	RESEAU RES 10 K 4 2 % IDEN SIL 8 SFERN SIL8-4
RR0006	087813340	00	RESEAU RES 10 K 4 2 % IDEN SIL 8 SFERN SIL8-4
RR0007	087813188	00	RESEAU RES 220 OHM 4 2 % IDEN SIL 8 SFERN SIL8-4
RR0008	087813188	00	RESEAU RES 220 OHM 4 2 % IDEN SIL 8 SFERN SIL8-4
S 0001	892800021	00	COMMUTATEUR SIEMENS POUR CI 1 ELEMENT
S 0002	892800021	00	COMMUTATEUR SIEMENS POUR CI 1 ELEMENT
T 0001	889600105	00	TRANSFO TC 69081 5224
U 0001	265014580	00	CI INT LIN BIP*MC 1458CP1 *AMP OP DIL 8 MOTOR
U 0002	266007230	01	CI INT LIN BIP*UA 723CN *REGUL DIL 14 TEXAS
U 0003	266078050		CI INT LIN BIP MC 7805CT REGUL P TO 220 N2104
U 0004	266007230	01	CI INT LIN BIP*UA 723CN *REGUL DIL 14 TEXAS
U 0005	260040930	00	CI INT LOG CMC*MC 14093BCP *PORTE DIL 14 MOTOR IMPER
U 0006	264040290	00	CI INT LOG CMS*MC 14029BCP *COMPT DIL 16 N2205
U 0007	264040510	01	CI INT LOG CMS*MC 14051BPC *MU-PLEX DIL 16 N2205
U 0008	264045841	00	CI INT LOG CMS*MC 14584BCP *DIVER DIL 14 MOTOR IMPER
U 0009	264040130		CI INT LOG CMS MC 14013BCP BISTA TO 116 N2205
U 0010	264040130		CI INT LOG CMS MC 14013BCP BISTA TO 116 N2205
U 0011	264040510	01	CI INT LOG CMS*MC 14051BPC *MU-PLEX DIL 16 N2205
U 0012	264040010		CI INT LOG CMS MC 14001BCP PORTE TO 116 N2205
U 0013	264040490	01	CI INT LOG CMS MC 14049UBCP DIVER DIL 16 N2205
U 0014	264040130		CI INT LOG CMS MC 14013BCP BISTA TO 116 N2205
U 0015	264040490	01	CI INT LOG CMS MC 14049UBCP DIVER DIL 16 N2205
U 0016	264040130		CI INT LOG CMS MC 14013BCP BISTA TO 116 N2205
U 0017	264040660	00	CI INT LOG CMS*MC 14066BCP *DIVER DIL 14 MOTOR
U 0018	264040010		CI INT LOG CMS MC 14001BCP PORTE TO 116 N2205
U 0019	264040130		CI INT LOG CMS MC 14013BCP BISTA TO 116 N2205
U 0020	260040660	00	CI INT LOG CMS*MC 14066BCP *DIVER DIL 14 MOTOR IMPER
U 0021	264040010		CI INT LOG CMS MC 14001BCP PORTE TO 116 N2205
U 0022	264045841	00	CI INT LOG CMS*MC 14584BCP *DIVER DIL 14 MOTOR IMPER
U 0023	264040130		CI INT LOG CMS MC 14013BCP BISTA TO 116 N2205
U 0024	261004740	01	CI INT LOG TTL*SN 74LS74N *BISTA DIL 14 N2206
U 0025	652202427	00	CI INT DISTRIB U25 U26 5220-24-27
U 0026	652202427	00	CI INT DISTRIB U25 U26 5220-24-27
U 0027	264040500		CI INT LOG CMS MC 14050BCP DIVER DIL 16 N2205
U 0028	260040930	00	CI INT LOG CMC*MC 14093BCP *PORTE DIL 14 MOTOR IMPER
U 0029	264040290	00	CI INT LOG CMS*MC 14029BCP *COMPT DIL 16 N2205

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Circuit Z1 (suite)

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
U 0030	264040510	01	CI INT LOG CMS*MC 14051BPC *MU-PLEX DIL 16 N2205
U 0031	264040500		CI INT LOG CMS MC 14050BCP DIVER DIL 16 N2205
U 0032	264040110		CI INT LOG CMS MC 14011BCP PORTE TO 116 N2205
U 0033	264040110		CI INT LOG CMS MC 14011BCP PORTE TO 116 N2205
U 0034	261004000	01	CI INT LOG TTL*SN 74LS00N *PORTE DIL 14 N2206
U 0035	260040930	00	CI INT LOG CMC*MC 14093BCP *PORTE DIL 14 MOTOR IMPER
U 0036	264040290	00	CI INT LOG CMS*MC 14029BCP *COMPT DIL 16 N2205
U 0037	264040510	01	CI INT LOG CMS*MC 14051BPC *MU-PLEX DIL 16 N2205
U 0038	264040500		CI INT LOG CMS MC 14050BCP DIVER DIL 16 N2205
U 0039	264040110		CI INT LOG CMS MC 14011BCP PORTE TO 116 N2205
U 0040	264040110		CI INT LOG CMS MC 14011BCP PORTE TO 116 N2205
U 0041	261004000	01	CI INT LOG TTL*SN 74LS00N *PORTE DIL 14 N2206
U 0043	264040760		CI INT LOG CMS MC 14076BCP BISTA DIL 16 N2205
U 0044	264040760		CI INT LOG CMS MC 14076BCP BISTA DIL 16 N2205
U 0045	264040760		CI INT LOG CMS MC 14076BCP BISTA DIL 16 N2205
U 0046	264040760		CI INT LOG CMS MC 14076BCP BISTA DIL 16 N2205
U 0047	264040760		CI INT LOG CMS MC 14076BCP BISTA DIL 16 N2205
U 0048	264040760		CI INT LOG CMS MC 14076BCP BISTA DIL 16 N2205
U 0049	264040760		CI INT LOG CMS MC 14076BCP BISTA DIL 16 N2205
U 0050	264040760		CI INT LOG CMS MC 14076BCP BISTA DIL 16 N2205
U 0051	264040760		CI INT LOG CMS MC 14076BCP BISTA DIL 16 N2205
U 0052	264040760		CI INT LOG CMS MC 14076BCP BISTA DIL 16 N2205
U 0053	261004000	01	CI INT LOG TTL*SN 74LS00N *PORTE DIL 14 N2206
U 0054	261004000	01	CI INT LOG TTL*SN 74LS00N *PORTE DIL 14 N2206

7 5220 5101 Circuit Z2 - Carte Y

COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
227022015	00	BUS-BAR CI IMP V 1C 27,94 28R PICO MEKTR M824-1-11
233500200		CABLE ORDIN 1C S 0,34 1,3 BLAN FILOT EPDF00
270242589	01	TRANST TRI DE 2 PN4258 /200142581
270404410	00	TRANST TRI DE 4 U441 /200104410
270600990	00	TRANST TRI DE 6 BFR99 /200100991
270642580	00	TRANST TRI DE 6 PN4258 /200142581
270842583	00	TRANST TRI DE 8 PN4258 /200142581
275314501	00	CI INT TRI DE 2 SL 3145 /266431450
300171820		CABLA COSSE CLIPS SERTI 2,8 LAITN ETAME AMP-- 140 718 2
300507091	00	CABLA FIXAT CLIPS 9,39 NYLON RICHC SLCS-12N- 370
304002050		RONDEL PLAT 2,6X 5 X 0,5 LAITN NICK MFOM- 1C
304003060		RONDEL PLAT 3,2X 6 X 0,5 LAITN NICK MFOM- 1
304302510	00	RONDEL DENTS DE 2,5X 5,5X 0,3 ACIER INOX N6333 NF-E27-618
304303010		RONDEL DENTS DE 3 X 6 X 0,4 ACIER INOX N6333 NF-E27-618
309102506		VIS C M 2,5X 6 ACIER INOX N6003 NF-E27-115
309103006		VIS C M 3 X 6 ACIER INOX N6003 NF-E27-115
313406251	00	ECROU SERTI M 2,5 0,8 A 1 ACIER CADM OTALU 3330-025- 0001
652200810	00	SCHEMA PREAMPLI Y VOIE A VOIE B 5220
841012158MG	00	EQUERRE BLINDAGE INTERMEDIAIRE ENTREE Y 5224
867512175MG	00	PLAQUETTE BLINDAGE ARRIERE DE DECADE 5224
867542141	00	PLAQUETTE CACHE INTER 5072
867542272	00	PLAQUETTE CACHE INTER COURTE 5220- 5224

7 5224 1101 Circuit Z2 - Préampli (Voie A seulement)

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
	652240810	00	SCHEMA ELECTRIQUE PREAMPLI VOIE A 5224
	752241011	00	NOMEN S/E PREAMPLI Y 5224
C 0031	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
C 0032	149321002		CAP10000 PF-20+100 63V CERAM 2 NO242
C 0060	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
CR0010	200455051	01	DIOD ZENER ◆BZX 55 ◆ 5,1V 5,0MA SESCO INDIC
R 0067	041320365		RES 36,5 K 1 % 0,25W METAL 50 PPM NO112
R 0068	016408200		RES 820 OHM 5 % 0,25W CARBON NO102
R 0069	041320100		RES 10 K 1 % 0,25W METAL 50 PPM NO112

NOMENCLATURE 5220

Circuit Z2 - Préampli Y (A ou B)

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
	200240800		SUPP 8C DIL 8 SOUD CU-AL ETAME N2500
	200241400		SUPP 14C DIL 14 SOUD CU-AL ETAME N2500
	214421022	01	CONNEC CI IMP EMB FEM 2C SOUD PAS 254 MOLEX 38-00-1332 4455C/AAA
	214447330		CONNEC CI IMP EMB MAL 1C POST BERG- 47310
	214447331		CONNEC CI IMP EMB MAL 1C POST BERG- 47311
	227022015	00	BUS-BAR CI IMP V IC 27,94 2BR PICO MEKTR M824-1-11
	302000011	01	CONNEC CI IMP EMB FEM 1C SOUD TEST BERG- 75315-012
	652240810	00	SCHEMA ELECTRIQUE PREAMPLI VOIE A 5224
	859044033	00	MANCHON RACCORD DE TJ 5224
	862554087MG	00	AXE RALLONGE TJ 5224
	899009752	00	PLAN DE MONTAGE MANCHON DE TJ 5224
C 0001	149101501		CAP 15 PF 5 % 500V CERAM 1 NO246
C 0002	154902151	01	CAP 3 PF 15 250V AJUST CERAM TUB STETT R-TRIKO- 310805500
C 0003	142870056	00	CAP 56 PF 2 % 100V CERAM 1 RAD 508 VITRA VP418A 560-GB
C 0004	154901041	00	CAP 1 PF 4 250V AJUST CERAM TUB STETT R-TRIKO- 310906 120
C 0005	149100561		CAP 5,6 PF+-0,25P 500V CERAM 1 NO246
C 0006	142870133	00	CAP 330 PF 2 % 100V CERAM 1 RAD 508 VITRA VP418A 331-GB
C 0007	149000825	00	CAP 8,2 PF+-0,25P 63V CERAM 1 508 NO245
C 0008	154907031	00	CAP 0,5 PF 3 250V AJUST CERAM TUB STETT R-TRIKO 313512020
C 0009	149414701		CAP 4700 PF-20+50 500V CERAM 2 NO243
C 0010	149010121		CAP 120 PF 5 % 63V CERAM 1 508 NO245
C 0011	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
C 0012	149321002		CAP10000 PF-20+100 63V CERAM 2 NO242
C 0013	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
C 0014	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
C 0015	149321002		CAP10000 PF-20+100 63V CERAM 2 NO242
C 0016	149000825	00	CAP 8,2 PF+-0,25P 63V CERAM 1 508 NO245
C 0017	149002705	00	CAP 27 PF 5 % 63V CERAM 1 508 NO245
C 0018	149002705	00	CAP 27 PF 5 % 63V CERAM 1 508 NO245
C 0019	149005605	00	CAP 56 PF 5 % 63V CERAM 1 508 NO245
C 0021	149000335	00	CAP 3,3 PF+-0,25P 63V CERAM 1 508 NO245
C 0022	149000335	00	CAP 3,3 PF+-0,25P 63V CERAM 1 508 NO245
C 0023	151000188	00	CAP 3,9 PF 27 100V AJUST PTFE DAU-- 107-3901- 027
C 0024	149010271		CAP 270 PF 5 % 63V CERAM 1 508 NO245
C 0025	154902151	01	CAP 3 PF 15 250V AJUST CERAM TUB STETT R-TRIKO- 310805500
C 0026	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
C 0027	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
C 0028	156826010	01	CAP 10 MF-10+50 35V CHIMIC RAD 508 NO220
C 0029	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
C 0030	149321002		CAP10000 PF-20+100 63V CERAM 2 NO242
C 0033	149000565	00	CAP 5,6 PF+-0,25P 63V CERAM 1 508 NO245
C 0053	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
C 0058	164501447		CAP 4,7 MF-20+50 35V TANTAL GOUT NO203
C 0059	149001805	00	CAP 18 PF 5 % 63V CERAM 1 508 NO245
CR0003	200455051	01	DIOD ZENER *BZX 55 * 5,1V 5,0MA SESCO INDIC
CR0004	200744840	00	DIOD LUMIN 3 MM ROUGE HP--- HLMP-1000 5082-4480
CR0005	200342440	01	DIOD SPCIAL* 1N4244 * 20 V SWITC SESCO INDIC
CR0006	200342440	01	DIOD SPCIAL* 1N4244 * 20 V SWITC SESCO INDIC
CR0007	200342440	01	DIOD SPCIAL* 1N4244 * 20 V SWITC SESCO INDIC
CR0008	200342440	01	DIOD SPCIAL* 1N4244 * 20 V SWITC SESCO INDIC

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Circuit Z2 - Préampli Y (A ou B)

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
CR0009	200707001	00	DIOD LUMIN 3 MM VERTE 2,30 SIEMS CQV35E
L 0001	212600100	01	ACCES MAGN PERLE 3,7X1,2X3,5-4A1 FEROX RTC-- 4322-020- 34410
L 0002	212600100	01	ACCES MAGN PERLE 3,7X1,2X3,5-4A1 FEROX RTC-- 4322-020- 34410
L 0003	212600100	01	ACCES MAGN PERLE 3,7X1,2X3,5-4A1 FEROX RTC-- 4322-020- 34410
Q 0001	652240060	00	TRANST DISTRIB QL CI Z2 /270404410
Q 0002	652240061	00	TRANST.DISTR.Q2-Q3(Z212708 & 2706/00990
Q 0003	652240061	00	TRANST.DISTR.Q2-Q3(Z212708 & 2706/00990
Q 0004	652240062	00	TRANST DISTRIB Q4 Q5 CI Z2 /270842583
Q 0005	652240062	00	TRANST DISTRIB Q4 Q5 CI Z2 /270842583
Q 0006	652240063	00	TRANST DISTRIB Q6 Q7 CI Z2 /270842584
Q 0007	652240063	00	TRANST DISTRIB Q6 Q7 CI Z2 /270842584
Q 0008	200109790	00	TRANST LP SI P&BF 979 & SOT 37 RTC--
R 0001	016400390		RES 39 OHM 5 % 0,25W CARBON NO102
R 0002	075363898		RES 898 K 0,5 % 0,5 W METAL 25 PPM ORALR SMA 0411
R 0003	041321110	01	RES 111 K 1 % 0,25W METAL 50 PPM NO112 VALEUR SPE
R 0004	016400100		RES 10 OHM 5 % 0,25W CARBON NO102
R 0005	075363988		RES 988 K 0,5 % 0,5 W METAL 25 PPM ORALR SMA 0411
R 0006	016400150		RES 15 OHM 5 % 0,25W CARBON NO102
R 0007	041320101	01	RES 10,1 K 1 % 0,25W METAL 50 PPM NO112 VALEUR SPE
R 0008	016400470		RES 47 OHM 5 % 0,25W CARBON NO102
R 0009	016400180		RES 18 OHM 5 % 0,25W CARBON NO102
R 0010	016401200		RES 120 OHM 5 % 0,25W CARBON NO102
R 0011	016401500		RES 150 OHM 5 % 0,25W CARBON NO102
R 0012	075344100		RES 1 M 1 % 0,5 W METAL 50 PPM ORALR SMA 0411
R 0013	033633447	00	RES 470 K 5 % 0,5 W CARBON ALLEN EB

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
R 0014	016420180		RES 18 K 5 % 0,25W CARBON NO102
R 0015	105415310	00	POT 10 K 20%A CAR TRIM PLAQ VER CI PIHER PT10MXH(SI AXE 5012
R 0016	016402200		RES 220 OHM 5 % 0,25W CARBON NO102
R 0017	016401000		RES 100 OHM 5 % 0,25W CARBON NO102
R 0018	016401000		RES 100 OHM 5 % 0,25W CARBON NO102
R 0019	041303320		RES 332 OHM 1 % 0,25W METAL 50 PPM NO112
R 0020	016703600	01	RES 360 OHM 5 % 0,5 W METAL RTC-- SFR 30
R 0021	041310536		RES 5,36 K 1 % 0,25W METAL 50 PPM NO112
R 0022	016410300		RES 3,0 K 5 % 0,25W CARBON NO102
R 0023	016401000		RES 100 OHM 5 % 0,25W CARBON NO102
R 0024	016422200		RES 220 K 5 % 0,25W CARBON NO102
R 0025	108600247		POT 4,7K 20%A CER TRIM ROND HOR 0,75W CI SFERN T7YB
R 0026	897500308	00	POTC DBCS+INT 10KAV 20/%A +10KAR 20%C CI RUWID 0811-301E
R 0027	016400820		RES 82 OHM 5 % 0,25W CARBON NO102
R 0028	016400390		RES 39 OHM 5 % 0,25W CARBON NO102
R 0029	016423600		RES 360 K 5 % 0,25W CARBON NO102
R 0030	108600410		POT 100 K 20%A CER TRIM ROND HOR 0,75W CI SFERN T7YB
R 0031	041308060		RES 806 OHM 1 % 0,25W METAL 50 PPM NO112
R 0032	041308060		RES 806 OHM 1 % 0,25W METAL 50 PPM NO112
R 0033	041304990		RES 499 OHM 1 % 0,25W METAL 50 PPM NO112
R 0034	041304990		RES 499 OHM 1 % 0,25W METAL 50 PPM NO112
R 0035	041306810		RES 681 OHM 1 % 0,25W METAL 50 PPM NO112
R 0036	016401000		RES 100 OHM 5 % 0,25W CARBON NO102
R 0037	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0038	108600310		POT 10 K 20%A CER TRIM ROND HOR 0,75W CI SFERN T7YB

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Circuit Z2 - Préampli Y (A ou B)

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
R 0039	J16400100		RES 10 OHM 5 % 0,25W CARBON NO102
R 0040	016410200		RES 2,0 K 5 % 0,25W CARBON NO102
R 0041	016410200		RES 2,0 K 5 % 0,25W CARBON NO102
R 0042	016410150		RES 1,5 K 5 % 0,25W CARBON NO102
R 0043	016420510		RES 51 K 5 % 0,25W CARBON NO102
R 0044	016410470		RES 4,7 K 5 % 0,25W CARBON NO102
R 0045	016400470		RES 47 OHM 5 % 0,25W CARBON NO102
R 0046	016400470		RES 47 OHM 5 % 0,25W CARBON NO102
R 0047	108600122		POT 220 U 20%A CER TRIM ROND HOR 0,75W CI SFERN T7YB
R 0048	041310130		RES 1,3 K 1 % 0,25W METAL 50 PPM NO112
R 0049	041310130		RES 1,3 K 1 % 0,25W METAL 50 PPM NO112
R 0050	041301000		RES 100 OHM 1 % 0,25W METAL 50 PPM NO112
R 0051	016402000		RES 200 OHM 5 % 0,25W CARBON NO102
R 0052	016402000		RES 200 OHM 5 % 0,25W CARBON NO102
R 0053	041309090		RES 909 OHM 1 % 0,25W METAL 50 PPM NO112
R 0054	041309090		RES 909 OHM 1 % 0,25W METAL 50 PPM NO112
R 0055	108600147		POT 470 U 20%A CER TRIM ROND HOR 0,75W CI SFERN T7YB
R 0056	041320140		RES 14 K 1 % 0,25W METAL 50 PPM NO112
R 0057	041302800		RES 280 OHM 1 % 0,25W METAL 50 PPM NO112
R 0058	016400200		RES 20 OHM 5 % 0,25W CARBON NO102
R 0059	016400200		RES 20 OHM 5 % 0,25W CARBON NO102
R 0060	016410330		RES 3,3 K 5 % 0,25W CARBON NO102
R 0061	016410330		RES 3,3 K 5 % 0,25W CARBON NO102
R 0062	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0063	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0064	016410300		RES 3,0 K 5 % 0,25W CARBON NO102
R 0065	016400470		RES 47 OHM 5 % 0,25W CARBON NO102
R 0066	041302000		RES 200 OHM 1 % 0,25W METAL 50 PPM NO112
RR0001	889200015	00	RESIST.RESEAU POUR AMPLI Y 5220-5224
RR0002	889200021	00	RESEAU DE 5 RESISTANCES CARTE Y 5220-24-77
RT0006	088900147	01	RES N/LIN CTN 470 U 10% 0,5 W DISC RTC-- 2322 642 62471
S 0001	892500128	00	COMMUTATEUR ATTENUATEUR 5224
S 0002	218112205	00	COMMUT LEVIE 2P UNI INV CI APR-- TW 36CD
S 0003	210401275	01	COMMUT POUSS 1TOU 2P 2C 0,1 A INDEP PROF JEANR TJMY INDEP NCC
U 0001	266431450	02	CI INT LIN BIP*SL 3145C-DG*DIVER DIL 14 PLESS
U 0002	652270065		DISTRIBUTION U2 Z2 275314501
U 0003	265000820	00	CI INT LIN BIP TL 082CP AMP OP DIL 8 TEXAS

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Circuit Z2 - Voie C

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
	200240800		SUPP 8C DIL 8 SOUD CU-AL ETAME N2500
	200241400		SUPP 14C DIL 14 SOUD CU-AL ETAME N2500
	214421022	01	CONNEC CI IMP EMB FEM 2C SOUD PAS 254 MOLEX 38-00-1332 4455C/AAA
	214447330		CONNEC CI IMP EMB MAL 1C POST BERG- 47310
	214447331		CONNEC CI IMP EMB MAL 1C POST BERG- 47311
	227022015	00	BUS-BAR CI IMP V IC 27,94 2BR PICO MEKTR M824-1-11
	302000011	01	CONNEC CI IMP EMB FEM 1C SOUD TEST BERG- 75315-012
	652200812	00	SCHEMA ELECT.PREAMPLI Y VOIE C 5220
C 0002	154902151	01	CAP 3 PF 15 250V AJUST CERAM TUB STETT R-TRIKO- 310805500
C 0003	142870056	00	CAP 56 PF 2 % 100V CERAM 1 RAD 508 VITRA VP41BA 560-GB
C 0009	149414701		CAP 4700 PF-20+50 500V CERAM 2 N0243
C 0010	149010121		CAP 120 PF 5 % 63V CERAM 1 508 N0245
C 0011	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
C 0012	149321002		CAP10000 PF-20+100 63V CERAM 2 N0242
C 0013	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
C 0014	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
C 0015	149321002		CAP10000 PF-20+100 63V CERAM 2 N0242
C 0018	149002705	00	CAP 27 PF 5 % 63V CERAM 1 508 N0245
C 0021	149000335	00	CAP 3,3 PF+-0,25P 63V CERAM 1 508 N0245
C 0022	149000335	00	CAP 3,3 PF+-0,25P 63V CERAM 1 508 N0245
C 0023	151000188	00	CAP 3,9 PF 27 100V AJUST PTFE DAU-- 107-3901- 027
C 0024	149010271		CAP 270 PF 5 % 63V CERAM 1 508 N0245
C 0025	154902151	01	CAP 3 PF 15 250V AJUST CERAM TUB STETT R-TRIKO- 310805500
C 0026	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
C 0027	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
C 0028	156826010	01	CAP 10 MF-10+50 35V CHIMIC RAD 508 N0220
C 0029	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
C 0030	149321002		CAP10000 PF-20+100 63V CERAM 2 N0242
C 0033	149000565	00	CAP 5,6 PF+-0,25P 63V CERAM 1 508 N0245
C 0053	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
C 0058	164501447		CAP 4,7 MF-20+50 35V TANTAL GOUT N0203
CR0003	200455051	01	DIOD ZENER *BZX 55 * 5,1V 5,0MA SESCO INDIC
CR0004	200744840	00	DIOD LUMIN 3 MM ROUGE HP--- HLMP-1000 5082-4480
CR0005	200342440	01	DIOD SPCIAL* 1N4244 * 20 V SWITC SESCO INDIC
CR0006	200342440	01	DIOD SPCIAL* 1N4244 * 20 V SWITC SESCO INDIC
CR0007	200342440	01	DIOD SPCIAL* 1N4244 * 20 V SWITC SESCO INDIC
CR0008	200342440	01	DIOD SPCIAL* 1N4244 * 20 V SWITC SESCO INDIC
CR0009	200707001	00	DIOD LUMIN 3 MM VERTE 2,30 SIEMS CQV35E
L 0001	212600100	01	ACCES MAGN PERLE 3,7X1,2X3,5-4A1 FEROX RTC-- 4322-020- 34410
L 0002	212600100	01	ACCES MAGN PERLE 3,7X1,2X3,5-4A1 FEROX RTC-- 4322-020- 34410
L 0003	212600100	01	ACCES MAGN PERLE 3,7X1,2X3,5-4A1 FEROX RTC-- 4322-020- 34410
Q 0001	652240060	00	TRANST DISTRIB Q1 C1 Z2 /270404410
Q 0002	652240061	00	TRANST.DISTR.Q2-Q3IZ212708 & 2706/00990
Q 0003	652240061	00	TRANST.DISTR.Q2-Q3IZ212708 & 2706/00990
Q 0004	652240062	00	TRANST DISTRIB Q4 Q5 C1 Z2 /270842583
Q 0005	652240062	00	TRANST DISTRIB Q4 Q5 C1 Z2 /270842583
Q 0006	652200069	00	TRANST DISTRIB Q6 Q7 C1 Z2 /270642580
Q 0007	652200069	00	TRANST DISTRIB Q6 Q7 C1 Z2 /270642580
Q 0008	200109790	00	TRANST LP SI P*BF 979 * SOT 37 RTC--
R 0002	075363898		RES 898 K 0,5 % 0,5 W METAL 25 PPM DRALR SMA 0411

Circuit Z2 - Voie C

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
R 0003	041321000		RES 100 K 1 % 0,25W METAL 50 PPM NO112
R 0006	016401500		RES 150 OHM 5 % 0,25W CARBON NO102
R 0011	016401500		RES 150 OHM 5 % 0,25W CARBON NO102
R 0013	033633447	00	RES 470 K 5 % 0,5 W CARBON ALLEN EB
R 0014	016420180		RES 18 K 5 % 0,25W CARBON NO102
R 0015	105415310	00	POT 10 K 20%A CAR TRIM PLAQ VER CI PIHER PT10MXH(S) AXE 5012
R 0016	016402200		RES 220 OHM 5 % 0,25W CARBON NO102
R 0017	016401000		RES 100 OHM 5 % 0,25W CARBON NO102
R 0018	016401000		RES 100 OHM 5 % 0,25W CARBON NO102
R 0019	041303320		RES 332 OHM 1 % 0,25W METAL 50 PPM NO112
R 0020	016703600	01	RES 360 OHM 5 % 0,5 W METAL RTC-- SFR 30
R 0021	041310536		RES 5,36 K 1 % 0,25W METAL 50 PPM NO112
R 0022	016410300		RES 3,0 K 5 % 0,25W CARBON NO102
R 0023	016401000		RES 100 OHM 5 % 0,25W CARBON NO102
R 0024	016422200		RES 220 K 5 % 0,25W CARBON NO102
R 0025	108600247		POT 4,7K 20%A CER TRIM ROND HOR 0,75W CI SFERN T7YB
R 0026	897500308	00	POTC OBCS+INT 10KAV 20/%A +10KAR 20%C CI RUWID 0811-301E
R 0027	016400820		RES 82 OHM 5 % 0,25W CARBON NO102
R 0028	016400390		RES 39 OHM 5 % 0,25W CARBON NO102
R 0029	016423600		RES 360 K 5 % 0,25W CARBON NO102
R 0030	108600410		POT 100 K 20%A CER TRIM ROND HOR 0,75W CI SFERN T7YB
R 0031	041308060		RES 806 OHM 1 % 0,25W METAL 50 PPM NO112
R 0032	041308060		RES 806 OHM 1 % 0,25W METAL 50 PPM NO112
R 0033	041304990		RES 499 OHM 1 % 0,25W METAL 50 PPM NO112
R 0034	041304990		RES 499 OHM 1 % 0,25W METAL 50 PPM NO112

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
R 0035	041306810		RES 681 OHM 1 % 0,25W METAL 50 PPM NO112
R 0036	016401000		RES 100 OHM 5 % 0,25W CARBON NO102
R 0039	016400100		RES 10 OHM 5 % 0,25W CARBON NO102
R 0040	016410200		RES 2,0 K 5 % 0,25W CARBON NO102
R 0041	016410200		RES 2,0 K 5 % 0,25W CARBON NO102
R 0042	016410150		RES 1,5 K 5 % 0,25W CARBON NO102
R 0043	016420510		RES 51 K 5 % 0,25W CARBON NO102
R 0044	016410470		RES 4,7 K 5 % 0,25W CARBON NO102
R 0045	016400470		RES 47 OHM 5 % 0,25W CARBON NO102
R 0046	016400470		RES 47 OHM 5 % 0,25W CARBON NO102
R 0047	108600122		POT 220 U 20%A CER TRIM ROND HOR 0,75W CI SFERN T7YB
R 0048	041310130		RES 1,3 K 1 % 0,25W METAL 50 PPM NO112
R 0049	041310130		RES 1,3 K 1 % 0,25W METAL 50 PPM NO112
R 0050	041301000		RES 100 OHM 1 % 0,25W METAL 50 PPM NO112
R 0051	016402000		RES 200 OHM 5 % 0,25W CARBON NO102
R 0052	016402000		RES 200 OHM 5 % 0,25W CARBON NO102
R 0053	041309090		RES 909 OHM 1 % 0,25W METAL 50 PPM NO112
R 0054	041309090		RES 909 OHM 1 % 0,25W METAL 50 PPM NO112
R 0055	108600147		POT 470 U 20%A CER TRIM ROND HOR 0,75W CI SFERN T7YB
R 0056	041320140		RES 14 K 1 % 0,25W METAL 50 PPM NO112
R 0057	041302800		RES 280 OHM 1 % 0,25W METAL 50 PPM NO112
R 0058	016400200		RES 20 OHM 5 % 0,25W CARBON NO102
R 0059	016400200		RES 20 OHM 5 % 0,25W CARBON NO102
R 0060	016410330		RES 3,3 K 5 % 0,25W CARBON NO102
R 0061	016410330		RES 3,3 K 5 % 0,25W CARBON NO102

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REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
R 0062	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0063	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0064	016410300		RES 3,0 K 5 % 0,25W CARBON NO102
R 0065	016400470		RES 47 OHM 5 % 0,25W CARBON NO102
R 0066	041302000		RES 200 OHM 1 % 0,25W METAL 50 PPM NO112
RR0001	889200015	00	RESIST.RESEAU POUR AMPLI Y 5220-5224
RR0002	889200021	00	RESEAU DE 5 RESISTANCES CARTE Y 5220-24-77
RT0006	088900147	01	RES N/LIN CTN 470 U 10% 0,5 W DISC RTC-- 2322 642 62471
S 0002	218112205	00	COMMUT LEVIE 2P UNI INV CI APR-- TW 36CD
U 0001	266431450	02	CI INT LIN BIP*SL 3145C-DG*DIVER DIL 14 PLESS
U 0002	266431450	02	CI INT LIN BIP*SL 3145C-DG*DIVER DIL 14 PLESS
U 0003	265000820	00	CI INT LIN BIP TL 082CP AMP OP DIL 8 TEXAS

NOMENCLATURE 5220

Circuit Z2 - Synchro Ext.

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
	200241400		SUPP 14C DIL 14 SOUD CU-AL ETAME N2500
	214447330		CONNEC CI IMP EMB MAL 1C POST BERG- 47310
	214447331		CONNEC CI IMP EMB MAL 1C POST BERG- 47311
	227022015	00	BUS-BAR CI IMP V 1C 27,94 2BR PICO MEKTR M824-1-11
	302000011	01	CONNEC CI IMP EMB FEM 1C SOUD TEST BERG- 75315-012
	652200813	00	SCHEMA ELECT.SYNCHRO EXTERIEUR 5220
C 0002	154902151	01	CAP 3 PF 15 250V AJUST CERAM TUB STETT R-TRIKO- 310805500
C 0003	142870056	00	CAP 56 PF 2 % 100V CERAM 1 RAD 508 VITRA VP41BA 560-GB
C 0009	149414701		CAP 4700 PF-20+50 500V CERAM 2 NO243
C 0010	149010121		CAP 120 PF 5 % 63V CERAM 1 508 NO245
C 0011	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
C 0012	149321002		CAP10000 PF-20+100 63V CERAM 2 NO242
C 0013	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
C 0014	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
C 0028	156826010	01	CAP 10 MF-10+50 35V CHIMIC RAD 508 NO220
C 0033	149000565	00	CAP 5,6 PF+-0,25P 63V CERAM 1 508 NO245
C 0057	149000825	00	CAP 8,2 PF+-0,25P 63V CERAM 1 508 NO245
C 0058	164501447		CAP 4,7 MF-20+50 35V TANTAL GOUT NO203
CR0003	200455051	01	DIOD ZENER *BZX 55 * 5,1V 5,0MA SESCO INDIC
Q 0001	652240060	00	TRANST DISTRIB Q1 CI Z2 /270404410
Q 0002	652200071		TRANST DISTRIB Q2 -Q3 CIZ2 /270242589
Q 0003	652200071		TRANST DISTRIB Q2 -Q3 CIZ2 /270242589
Q 0004	652240062	00	TRANST DISTRIB Q4 Q5 CI Z2 /270842583
Q 0005	652240062	00	TRANST DISTRIB Q4 Q5 CI Z2 /270842583
Q 0008	200109790	00	TRANST LP SI P+BF 979 * SOT 37 RTC--

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
R 0002	075363898		RES 898 K 0,5 % 0,5 W METAL 25 PPM DRALR SMA 0411
R 0003	041321000		RES 100 K 1 % 0,25W METAL 50 PPM NO112
R 0006	016401500		RES 150 OHM 5 % 0,25W CARBON NO102
R 0011	016401500		RES 150 OHM 5 % 0,25W CARBON NO102
R 0013	033633447	00	RES 470 K 5 % 0,5 W CARBON ALLEN EB
R 0014	016420180		RES 18 K 5 % 0,25W CARBON NO102
R 0015	105415310	00	POT 10 K 20%A CAR TRIM PLAQ VER CI PIHER PT10MXH(5) AXE 5012
R 0016	016402200		RES 220 OHM 5 % 0,25W CARBON NO102
R 0017	016401000		RES 100 OHM 5 % 0,25W CARBON NO102
R 0018	016401000		RES 100 OHM 5 % 0,25W CARBON NO102
R 0019	041303320		RES 332 OHM 1 % 0,25W METAL 50 PPM NO112
R 0020	016703600	01	RES 360 OHM 5 % 0,5 W METAL RTC-- SFR 30
R 0021	041310536		RES 5,36 K 1 % 0,25W METAL 50 PPM NO112
R 0024	016422200		RES 220 K 5 % 0,25W CARBON NO102
R 0025	108600247		POT 4,7K 20%A CER TRIM ROND HOR 0,75W CI SFERN T7YB
R 0028	016400390		RES 39 OHM 5 % 0,25W CARBON NO102
R 0029	016423600		RES 360 K 5 % 0,25W CARBON NO102
R 0030	108600410		POT 100 K 20%A CER TRIM ROND HOR 0,75W CI SFERN T7YB
R 0031	041308060		RES 806 OHM 1 % 0,25W METAL 50 PPM NO112
R 0032	041308060		RES 806 OHM 1 % 0,25W METAL 50 PPM NO112
R 0033	041304990		RES 499 OHM 1 % 0,25W METAL 50 PPM NO112
R 0034	041304990		RES 499 OHM 1 % 0,25W METAL 50 PPM NO112
R 0035	041306810		RES 681 OHM 1 % 0,25W METAL 50 PPM NO112
R 0036	016401000		RES 100 OHM 5 % 0,25W CARBON NO102
R 0039	016400100		RES 10 OHM 5 % 0,25W CARBON NO102

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REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
R 0040	016410200		RES 2,0 K 5 % 0,25W CARBON NO102
R 0041	016410200		RES 2,0 K 5 % 0,25W CARBON NO102
R 0043	016420510		RES 51 K 5 % 0,25W CARBON NO102
R 0045	016400470		RES 47 OHM 5 % 0,25W CARBON NO102
R 0046	016400470		RES 47 OHM 5 % 0,25W CARBON NO102
R 0047	108600122		POT 220 U 20%A CER TRIM ROND HOR 0,75W CL SFERN T7YB
R 0048	041310130		RES 1,3 K 1 % 0,25W METAL 50 PPM NO112
R 0049	041310130		RES 1,3 K 1 % 0,25W METAL 50 PPM NO112
R 0050	041301000		RES 100 OHM 1 % 0,25W METAL 50 PPM NO112
R 0066	041302000		RES 200 OHM 1 % 0,25W METAL 50 PPM NO112
RR0001	889200015	00	RESIST.RESEAU POUR AMPLI Y 5220-5224
RR0002	889200021	00	RESEAU DE 5 RESISTANCES CARTE Y 5220-24-77
RT0006	088900147	01	RES N/LIN CTN 470 U 10% 0,5 W DISC RTC-- 2322 642 62471
U 0001	266431450	02	CI INT LIN BIP*SL 3145C-DG*DIVER DIL 14 PLESS
U 0002	266431450	02	CI INT LIN BIP*SL 3145C-DG*DIVER DIL 14 PLESS

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Circuit Z2 - Final Y

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
	200270902	00	RADIAT ACCES RONDELLE 8,5X 3,3X1,6 AL 203 JERMY A26-2003
	214447796	01	CONNEC CI IMP FIC FEM LC POST PV VER BERG- 75302-001
	253507450		PASFIL ANNEAU 6,1 1,6 POLYE MFOM- 745
	270200510	00	TRANST TRI DE 2 BFT51 /200100512 RTC-- INDIC
	270200905		TRANST TRI DE 2 BFY90 /200100907
	270204491	00	TRANST TRI DE 2 BFQ 24 /200104491 RTC-- INDIC
	270238661		TRANST TRI DE 2 2N3866 /200138660
	270242589	01	TRANST TRI DE 2 PN4258 /200142581
	304003060		RONDEL PLAT 3,2X 6 X 0,5 LAITN NICK MFOM- 1
	309102525		VIS C M 2,5X25 ACIER INOX N6003 NF-E27-115
	313406250	00	ECROU SERTI M 2,5 1,5 ET • ACIER CADM OTALU RC 3330- 0250002
	345000150		COLONE ROND 5 X15 3,2 LAITN JEANR EN 15
	376000343	00	RADIAT TO 18 ALUMI H=19 SEEM- CO 343/2
	376003430	01	RADIAT TO 5 ALUMI H=12,9 SEEM- CO 343/1
	376003432	01	RADIAT TO 5 ALUMI H=19 SEEM- CO 343
	652240814	00	SCHEMA ELECTRIQUE PREAMPLI FINAL Y 5224
	876024037MG	00	RADIATEUR CI Y 5224
	882041004	01	SUPPORT TRANS GM
	882041005	02	SUPPORT TRANS PM
C 0034	149001805	00	CAP 18 PF 5 % 63V CERAM I 508 NO245
C 0035	149001805	00	CAP 18 PF 5 % 63V CERAM I 508 NO245
C 0036	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
C 0038	151000180	00	CAP 2 PF 9 100V AJUST PTFE DAU-- 107-1901- 009
C 0039	190010210	00	CAP 1000 PF 5 % 630V POLYPRO RAD 508 ROEDE KP1837-210-63-4
C 0040	151000188	00	CAP 3,9 PF 27 100V AJUST PTFE DAU-- 107-3901- 027

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
C 0041	149010101		CAP 100 PF 5 % 63V CERAM I 508 NO245
C 0042	156825047	01	CAP 47 MF-10+50 35V CHIMIC RAD 508 NO220
C 0043	156838947	00	CAP 4,7 MF-10+50 63V CHIMIC RAD 508 NO220
C 0044	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
C 0045	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
C 0047	151000188	00	CAP 3,9 PF 27 100V AJUST PTFE DAU-- 107-3901- 027
C 0049	170524701	01	CAP47000 PF 20 % 250V POLYEST NO263
C 0050	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
C 0051	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
C 0054	149000825	00	CAP 8,2 PF+-0,25P 63V CERAM I 508 NO245
C 0055	149000825	00	CAP 8,2 PF+-0,25P 63V CERAM I 508 NO245
C 0056	149001005	00	CAP 10 PF 5 % 63V CERAM I 508 NO245
C 0063	151000180	00	CAP 2 PF 9 100V AJUST PTFE DAU-- 107-1901- 009
C 0064	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
C 0065	149010101		CAP 100 PF 5 % 63V CERAM I 508 NO245
C 0066	149001005	00	CAP 10 PF 5 % 63V CERAM I 508 NO245
C 0067	149001505	00	CAP 15 PF 5 % 63V CERAM I 508 NO245
C 0068	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
CR0011	200342440	01	DIOD SPCIAL• 1N4244 • 20 V SWITC SESCO INDIC
CR0012	200342440	01	DIOD SPCIAL• 1N4244 • 20 V SWITC SESCO INDIC
CR0013	200455056	01	DIOD ZENER •BZX 55 • 5,6V 5,0MA SESCO INDIC
CR0014	200342440	01	DIOD SPCIAL• 1N4244 • 20 V SWITC SESCO INDIC
CR0015	200342440	01	DIOD SPCIAL• 1N4244 • 20 V SWITC SESCO INDIC
CR0016	200340048	00	DIOD REDRES• 1N4004 •400 V 1•0 A EXCLU
CR0017	200340048	00	DIOD REDRES• 1N4004 •400 V 1•0 A EXCLU

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Circuit Z2 - Final Y

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
J 0010	214421059	00	CONNEC CI IMP EMB FEM 5C PICO DORE 396 MOLEX 26-30-1053-3215-5CHG
J 0011	214421105	00	CONNEC CI IMP EMB FEM 10C PICO 396 MOLEX 26-11-2103 3215-10CH
K 0001	210901203	01	RELAIS REED 12V 10W 1000 OHM 1C T DIP CELDU D31A51 10
Q 0011	652240064	00	TRANST DISTRIB Q11 Q12 CI Z2 /270242589
Q 0012	652240064	00	TRANST DISTRIB Q11 Q12 CI Z2 /270242589
Q 0013	652240065	00	TRANST DISTRIB Q13 Q14 CI Z2 /270242589
Q 0014	652240065	00	TRANST DISTRIB Q13 Q14 CI Z2 /270242589
Q 0015	200102142	01	TRANST LP SI P*BC 214 * X 55 N2081 INDIC
Q 0016	200102142	01	TRANST LP SI P*BC 214 * X 55 N2081 INDIC
Q 0017	652240074	00	TRANST DISTRIB Q17 Q18 CI Z2 /270204491
Q 0018	652240074	00	TRANST DISTRIB Q17 Q18 CI Z2 /270204491
Q 0023	652240067	00	TRANST DISTRIB Q23 Q24 CI Z2 /270200510
Q 0024	652240067	00	TRANST DISTRIB Q23 Q24 CI Z2 /270200510
Q 0025	652240069		TRANST DISTRIB Q25 Q26 CI Z2 /270238661
Q 0026	652240069		TRANST DISTRIB Q25 Q26 CI Z2 /270238661
Q 0027	652770066	00	TRANST DISTRIB Q27 Q28 CI Z2 /270200905
Q 0028	652770066	00	TRANST DISTRIB Q27 Q28 CI Z2 /270200905
Q 0029	652770065	00	TRANST DISTRIB Q29 Q30 CI Z2 /270200905
Q 0030	652770065	00	TRANST DISTRIB Q29 Q30 CI Z2 /270200905
R 0071	041301370		RES 137 OHM 1 % 0,25W METAL 50 PPM N0112
R 0072	041320280		RES 28 K 1 % 0,25W METAL 50 PPM N0112
R 0073	041320143		RES 14,3 K 1 % 0,25W METAL 50 PPM N0112
R 0075	041309310		RES 931 OHM 1 % 0,25W METAL 50 PPM N0112
R 0076	041309310		RES 931 OHM 1 % 0,25W METAL 50 PPM N0112
R 0077	041304990		RES 499 OHM 1 % 0,25W METAL 50 PPM N0112

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
R 0078	041304990		RES 499 OHM 1 % 0,25W METAL 50 PPM N0112
R 0080	016400510		RES 51 OHM 5 % 0,25W CARBON N0102
R 0081	016431000		RES 1,0 M 5 % 0,25W CARBON N0102
R 0082	041302800		RES 280 OHM 1 % 0,25W METAL 50 PPM N0112
R 0083	041310150		RES 1,5 K 1 % 0,25W METAL 50 PPM N0112
R 0084	041310150		RES 1,5 K 1 % 0,25W METAL 50 PPM N0112
R 0085	016707500		RES 750 OHM 5 % 0,5 W CARBON N0106
R 0086	016707500		RES 750 OHM 5 % 0,5 W CARBON N0106
R 0087	041310221		RES 2,21 K 1 % 0,25W METAL 50 PPM N0112
R 0088	041300432		RES 43,2 OHM 1 % 0,25W METAL 50 PPM N0112
R 0089	041300432		RES 43,2 OHM 1 % 0,25W METAL 50 PPM N0112
R 0090	016403900		RES 390 OHM 5 % 0,25W CARBON N0102
R 0091	016403900		RES 390 OHM 5 % 0,25W CARBON N0102
R 0092	041300562		RES 56,2 OHM 1 % 0,25W METAL 50 PPM N0112
R 0093	041300562		RES 56,2 OHM 1 % 0,25W METAL 50 PPM N0112
R 0094	041304420		RES 442 OHM 1 % 0,25W METAL 50 PPM N0112
R 0095	041304420		RES 442 OHM 1 % 0,25W METAL 50 PPM N0112
R 0096	016401100		RES 110 OHM 5 % 0,25W CARBON N0102
R 0097	106002200		POT 220 U 20%A CER TRIM PLAQ VER CI N0332
R 0098	105900470		POT 47 U 20%A CER TRIM PLAQ HOR CI N0332
R 0099	016400560		RES 56 OHM 5 % 0,25W CARBON N0102
R 0100	041303010		RES 301 OHM 1 % 0,25W METAL 50 PPM N0112
R 0101	041303010		RES 301 OHM 1 % 0,25W METAL 50 PPM N0112
R 0102	041304990		RES 499 OHM 1 % 0,25W METAL 50 PPM N0112
R 0103	041304990		RES 499 OHM 1 % 0,25W METAL 50 PPM N0112

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Circuit Z2 - Final Y

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
R 0104	016400100		RES 10 OHM 5 % 0,25W CARBON NO102
R 0105	016400100		RES 10 OHM 5 % 0,25W CARBON NO102
R 0107	016404700		RES 470 OHM 5 % 0,25W CARBON NO102
R 0108	041302740		RES 274 OHM 1 % 0,25W METAL 50 PPM NO112
R 0109	016420560		RES 56 K 5 % 0,25W CARBON NO102
R 0110	108600110		POT 100 U 20%A CER TRIM ROND HOR 0,75W CI SFERN TTYB
R 0111	016410360		RES 3,6 K 5 % 0,25W CARBON NO102
R 0112	041301000		RES 100 OHM 1 % 0,25W METAL 50 PPM NO112
R 0113	016422000		RES 200 K 5 % 0,25W CARBON NO102
R 0117	016410220		RES 2,2 K 5 % 0,25W CARBON NO102
R 0120	041301500		RES 150 OHM 1 % 0,25W METAL 50 PPM NO112
R 0121	041301500		RES 150 OHM 1 % 0,25W METAL 50 PPM NO112
R 0122	016410120		RES 1,2 K 5 % 0,25W CARBON NO102
R 0123	016402200		RES 220 OHM 5 % 0,25W CARBON NO102
R 0125	041302740		RES 274 OHM 1 % 0,25W METAL 50 PPM NO112
R 0126	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0127	016400075		RES 7,5 OHM 5 % 0,25W CARBON NO102
R 0128	075340100	01	RES 100 OHM 1 % 0,7 W METAL 50 PPM ROEDE MK 4
R 0129	075340100	01	RES 100 OHM 1 % 0,7 W METAL 50 PPM ROEDE MK 4
R 0130	075340100	01	RES 100 OHM 1 % 0,7 W METAL 50 PPM ROEDE MK 4
R 0131	075340100	01	RES 100 OHM 1 % 0,7 W METAL 50 PPM ROEDE MK 4
R 0132	108600110		POT 100 U 20%A CER TRIM ROND HOR 0,75W CI SFERN TTYB
R 0134	016402000		RES 200 OHM 5 % 0,25W CARBON NO102
R 0135	016402000		RES 200 OHM 5 % 0,25W CARBON NO102
R 0136	066000620	00	RES 62 OHM 5 % 1,5 W METAL NO121
R 0137	035473143	00	RES 430 OHM 5 % 7 W METAL SOVCO FP7
R 0138	035473143	00	RES 430 OHM 5 % 7 W METAL SOVCO FP7
RR0003	087813340	00	RESEAU RES 10 K 4 2 % IDEN SIL 8 SFERN SIL8-4
RR0004	087813319	00	RESEAU RES 4,7 K 4 2 % IDEN SIL 8 SFERN SIL8-4
RT0001	089705410	01	RES N/LIN CTN 100 K 10% 0,5 W DISC RTC-- 2322 642 62104
RT0003	089705410	01	RES N/LIN CTN 100 K 10% 0,5 W DISC RTC-- 2322 642 62104
RT0005	089705122	01	RES N/LIN CTN 220 U 10% 0,5 W DISC RTC-- 2322 642 62221

COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION	
200240800		SUPP 8C DIL 8 SOUD CU-AL ETAME N2500	
200241400		SUPP 14C DIL 14 SOUD CU-AL ETAME N2500	
200241600		SUPP 16C DIL 16 SOUD CU-AL ETAME N2500	
200242400	00	SUPP 24C DIL 24 SOUD CU-AL ETAME N2500	
214429002	00	CONNEC LIMAND ACCES CONTACT MAL A SERTIR MOLEX 02-09-2103-1190-TL	
214429042	00	CONNEC LIMAND ACCES BOITIER MAL 4C SS OREIL MOLEX 03-09-2042-1490-P1	
214447330		CONNEC CI IMP EMB MAL 1C POST BERG- 47310	
214447331		CONNEC CI IMP EMB MAL 1C POST BERG- 47311	
214447337		CONNEC CI IMP EMB MAL 1C POST BERG- 47317	
214447796	01	CONNEC CI IMP FIC FEM 1C POST PV VER BERG- 75302-001	
220401004	00	FUSIBLE SUPPRT PINCE 5 LAITN ETAME PICO MFOM- 0270090- 919A	
238502000		CABLE ORDIN 1C S 0,60 2,5 BLAN MAREU ELECTROAIR NI 19X0,2	
250500400		GAINE PVC 4 MM NOIR CFI-- PVC 40/10	
252000301	01	GAINE RETRAC 4,8MM NOIR RAYCH RNF1003/16 NOIR	
300101290	01	CABLA COSSE CI IMP PICO 2,8 LAITN ETAME LOUPO E 129/5	
309603004		VIS HC M 3 X 4 CUV ACIER N6073 NF-E27-162	
652240815	00	SCHEMA ELECTRIQUE SYNCHRO B1	5224
652240816	00	SCHEMA ELECTRIQUE VOLTMETRE	5224
652240817	00	SCHEMA ELECTRIQUE COMMUTATEUR B1	5224
652240818	00	SCHEMA ELECTRIQUE COMMUTATEUR B2	5224
652240819	00	SCHEMA ELECTRIQUE BASE DE TEMPS B1	5224
652240820	00	SCHEMA ELECTRIQUE BASE DE TEMPS B2	5224
652240821	00	SCHEMA ELECTRIQUE COMMUTATION B1 B2	5224
652240822	00	SCHEMA ELECTRIQUE AMPLI X	5224
652240823	00	SCHEMA ELECTRIQUE VOLTMETRE	5224

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION	
	690152240	00	LISTING PROGRAMMATION DISQUETTE	5224
	859024001	00	MANCHON RACCORD AXE	
	859024005	00	MANCHON RACCORD POT	5221
	862554088MG	00	AXE RALLONGE POT	5224
C 0001	149102201		CAP 22 PF 5 % 500V CERAM 1 NO246	
C 0002	149321002		CAP10000 PF-20+100 63V CERAM 2 NO242	
C 0003	149314702		CAP 4700 PF-20+80 63V CERAM 2 NO242	
C 0004	156604737		CAP 4,7 MF-20+100 63V CHIMIC NO221	
C 0005	156604737		CAP 4,7 MF-20+100 63V CHIMIC NO221	
C 0006	149001005		CAP 10 PF 5% 500V CERAM 1 NO246	
C 0007	149321002		CAP10000 PF-20+100 63V CERAM 2 NO242	
C 0008	164501410		CAP 1 MF-20+50 35V TANTAL GOUT NO203	
C 0009	164501410		CAP 1 MF-20+50 35V TANTAL GOUT NO203	
C 0010	149321002		CAP10000 PF-20+100 63V CERAM 2 NO242	
C 0011	149321002		CAP10000 PF-20+100 63V CERAM 2 NO242	
C 0012	142636410	00	CAP 0,1 MF 20 % 50V CERAM 2 RAD LCC-- UDZ 905FA	
C 0013	164501533		CAP 33 MF-20+50 10V TANTAL GOUT NO203	
C 0014	149000685	00	CAP 6,8 PF+-0,25P 63V CERAM 1 NO245	508
C 0015	149321002		CAP10000 PF-20+100 63V CERAM 2 NO242	
C 0016	156838947	00	CAP 4,7 MF-10+50 63V CHIMIC RAD 508 NO220	
C 0017	149321002		CAP10000 PF-20+100 63V CERAM 2 NO242	
C 0018	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD LCC-- GFO 611 UB	508
C 0019	149321002		CAP10000 PF-20+100 63V CERAM 2 NO242	
C 0020	190002210	00	CAP 1000 PF 2,5% 160V POLYPRO AX ROEDE KP1838-210-16-3	
C 0021	176743310	01	CAP10000 PF 5 % 160V POLYEST RAD RIFA- PHE 244 HA 510J	1016
C 0022	176834410	00	CAP 0,1 MF 10 % 100V POLYEST RAD RIFA- PHE 353 DA 610K	1016

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
C 0023	177338610	00 CAP 10 WIMA-	MF 5 % 63V POLYEST RAD 2750 MKS4
C 0024	182733082	01 CAP 82 SIEMS	PF 2,5% 160V POLYSTY AX B31063-B1820-H
C 0025	151000188	00 CAP 3,9 DAU--	PF 27 100V AJUST PTFE 107-3901- 027
C 0026	177330347	00 CAP47000 WIMA-	PF 10 % 63V POLYEST RAD 508 MKS2
C 0027	156838947	00 CAP 4,7 NO220	MF-10+50 63V CHIMIC RAD 508
C 0028	149211801	CAP 1800 NO243	PF 10 % 500V CERAM 2
C 0030	145501410	00 CAP 0,1 LCC--	MF-20+80 25V CERAM 3 RAD 508 GFO 611 UB
C 0031	149111005	00 CAP 1000 NO242	PF 10 % 63V CERAM 2
C 0032	145501410	00 CAP 0,1 LCC--	MF-20+80 25V CERAM 3 RAD 508 GFO 611 UB
C 0033	145501410	00 CAP 0,1 LCC--	MF-20+80 25V CERAM 3 RAD 508 GFO 611 UB
C 0034	176743310	01 CAP10000 RIFA-	PF 5 % 160V POLYEST RAD 1016 PHE 244 MA 510J
C 0035	176743510	01 CAP 1 RIFA-	MF 5 % 160V POLYEST RAD 2794 PHE 244 MG 710J
C 0036	182733082	01 CAP 82 SIEMS	PF 2,5% 160V POLYSTY AX B31063-B1820-H
C 0037	151000188	00 CAP 3,9 DAU--	PF 27 100V AJUST PTFE 107-3901- 027
C 0038	145501410	00 CAP 0,1 LCC--	MF-20+80 25V CERAM 3 RAD 508 GFO 611 UB
C 0039	156826010	01 CAP 10 NO220	MF-10+50 35V CHIMIC RAD 508
C 0040	145501410	00 CAP 0,1 LCC--	MF-20+80 25V CERAM 3 RAD 508 GFO 611 UB
C 0041	149314702	CAP 4700 NO242	PF-20+80 63V CERAM 2
C 0043	149003305	00 CAP 33 NO245	PF 5 % 63V CERAM 1 508
C 0045	149010101	CAP 100 NO245	PF 5 % 63V CERAM 1 508
C 0046	156826010	01 CAP 10 NO220	MF-10+50 35V CHIMIC RAD 508
C 0047	149002705	00 CAP 27 NO245	PF 5 % 63V CERAM 1 508
C 0048	156826010	01 CAP 10 NO220	MF-10+50 35V CHIMIC RAD 508
C 0049	145501410	00 CAP 0,1 LCC--	MF-20+80 25V CERAM 3 RAD 508 GFO 611 UB
C 0050	149010101	CAP 100 NO245	PF 5 % 63V CERAM 1 508

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
C 0051	149010221	CAP 220 NO245	PF 5 % 63V CERAM 1 508
C 0052	190010210	00 CAP 1000 ROEDE	PF 5 % 630V POLYPRO RAD 508 KP1837-210-63-4
C 0053	145501410	00 CAP 0,1 LCC--	MF-20+80 25V CERAM 3 RAD 508 GFO 611 UB
C 0054	149002205	00 CAP 22 NO245	PF 5 % 63V CERAM 1 508
C 0055	149010221	CAP 220 NO245	PF 5 % 63V CERAM 1 508
C 0056	149008205	00 CAP 82 NO245	PF 5 % 63V CERAM 1 508
C 0057	156838947	00 CAP 4,7 NO220	MF-10+50 63V CHIMIC RAD 508
C 0058	145501410	00 CAP 0,1 LCC--	MF-20+80 25V CERAM 3 RAD 508 GFO 611 UB
C 0059	149000275	00 CAP 2,7 NO245	PF+-0,25P 63V CERAM 1 508
C 0060	149004705	00 CAP 47 NO245	PF 5 % 63V CERAM 1 508
C 0061	149314702	CAP 4700 NO242	PF-20+80 63V CERAM 2
C 0062	149324701	CAP47000 NO242	PF-20+80 63V CERAM 2 02
C 0063	145501410	00 CAP 0,1 LCC--	MF-20+80 25V CERAM 3 RAD 508 GFO 611 UB
C 0064	145501410	00 CAP 0,1 LCC--	MF-20+80 25V CERAM 3 RAD 508 GFO 611 UB
C 0065	145501410	00 CAP 0,1 LCC--	MF-20+80 25V CERAM 3 RAD 508 GFO 611 UB
C 0066	149004705	00 CAP 47 NO245	PF 5 % 63V CERAM 1 508
C 0067	149010101	CAP 100 NO245	PF 5 % 63V CERAM 1 508
C 0068	149314702	CAP 4700 NO242	PF-20+80 63V CERAM 2
C 0069	145501410	00 CAP 0,1 LCC--	MF-20+80 25V CERAM 3 RAD 508 GFO 611 UB
C 0070	145501410	00 CAP 0,1 LCC--	MF-20+80 25V CERAM 3 RAD 508 GFO 611 UB
C 0071	149002205	00 CAP 22 NO245	PF 5 % 63V CERAM 1 508
C 0072	145501410	00 CAP 0,1 LCC--	MF-20+80 25V CERAM 3 RAD 508 GFO 611 UB
C 0073	145501410	00 CAP 0,1 LCC--	MF-20+80 25V CERAM 3 RAD 508 GFO 611 UB
C 0077	149321002	CAP10000 NO242	PF-20+100 63V CERAM 2
C 0078	149000155	00 CAP 1,5 NO245	PF+-0,25P 63V CERAM 1 508

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Circuit Z3 - Carte X

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
C 0079	145501410	00 CAP 0,1 LCC--	MF-20+80 25V CERAM 3 RAD 508 GFO 611 UB
C 0080	145501410	00 CAP 0,1 LCC--	MF-20+80 25V CERAM 3 RAD 508 GFO 611 UB
C 0081	149000155	00 CAP 1,5 NO245	PF+-0,25P 63V CERAM 1 508
C 0082	145501410	00 CAP 0,1 LCC--	MF-20+80 25V CERAM 3 RAD 508 GFO 611 UB
C 0083	149010101	CAP 100 NO245	PF 5 % 63V CERAM 1 508
C 0084	145501410	00 CAP 0,1 LCC--	MF-20+80 25V CERAM 3 RAD 508 GFO 611 UB
C 0085	145501410	00 CAP 0,1 LCC--	MF-20+80 25V CERAM 3 RAD 508 GFO 611 UB
C 0086	145501410	00 CAP 0,1 LCC--	MF-20+80 25V CERAM 3 RAD 508 GFO 611 UB
C 0087	156807210	CAP 1000 ITT--	MF-10+50 10V CHIMIC RAD 508 EN 12-35-X
C 0088	145501410	00 CAP 0,1 LCC--	MF-20+80 25V CERAM 3 RAD 508 GFO 611 UB
C 0089	156826010	01 CAP 10 NO220	MF-10+50 35V CHIMIC RAD 508
C 0091	149008205	00 CAP 82 NO245	PF 5 % 63V CERAM 1 508
C 0092	149000105	00 CAP 1 NO245	PF+-0,25P 63V CERAM 1 508
C 0093	154907031	00 CAP 0,5 STETT	PF 3 250V AJUST CERAM TUB R-TRIKO 313512020
C 0094	149324701	CAP47000 NO242	PF-20+80 63V CERAM 2 02
C 0095	170524701	01 CAP47000 NO263	PF 20 % 250V POLYEST
C 0096	149321002	CAP10000 NO242	PF-20+100 63V CERAM 2
C 0097	149321002	CAP10000 NO242	PF-20+100 63V CERAM 2
C 0098	170521001	01 CAP10000 NO263	PF 20 % 250V POLYEST
C 0099	154907031	00 CAP 0,5 STETT	PF 3 250V AJUST CERAM TUB R-TRIKO 313512020
C 0100	149000105	00 CAP 1 NO245	PF+-0,25P 63V CERAM 1 508
C 0101	170524701	01 CAP47000 NO263	PF 20 % 250V POLYEST
C 0102	170524701	01 CAP47000 NO263	PF 20 % 250V POLYEST
C 0103	156808047	00 CAP 47 NO220	MF-10+50 10V CHIMIC RAD 508
C 0104	156826010	01 CAP 10 NO220	MF-10+50 35V CHIMIC RAD 508

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
C 0105	156919110	CAP 100 NO220	MF-10+50 25V CHIMIC RAD 508
C 0106	145501410	00 CAP 0,1 LCC--	MF-20+80 25V CERAM 3 RAD 508 GFO 611 UB
C 0107	145501410	00 CAP 0,1 LCC--	MF-20+80 25V CERAM 3 RAD 508 GFO 611 UB
C 0108	177330410	01 CAP 0,1 WIMA-	MF 10 % 63V POLYEST RAD 508 MKS2
C 0109	177330410	01 CAP 0,1 WIMA-	MF 10 % 63V POLYEST RAD 508 MKS2
C 0110	145501410	00 CAP 0,1 LCC--	MF-20+80 25V CERAM 3 RAD 508 GFO 611 UB
C 0111	149321002	CAP10000 NO242	PF-20+100 63V CERAM 2
C 0112	170531002	CAP 0,1 NO263	MF 10 % 250V POLYEST
C 0113	170531002	CAP 0,1 NO263	MF 10 % 250V POLYEST
C 0114	149010221	CAP 220 NO245	PF 5 % 63V CERAM 1 508
C 0115	149005605	00 CAP 56 NO245	PF 5 % 63V CERAM 1 508
C 0116	149511005	00 CAP 1000 NO242	PF 10 % 63V CERAM 2
C 0117	156826022	01 CAP 22 NO220	MF-10+50 35V CHIMIC RAD 508
C 0118	156826022	01 CAP 22 NO220	MF-10+50 35V CHIMIC RAD 508
C 0119	149010181	CAP 180 NO245	PF 5 % 63V CERAM 1 508
C 0120	149008205	00 CAP 82 NO245	PF 5 % 63V CERAM 1 508
C 0121	149003305	00 CAP 33 NO245	PF 5 % 63V CERAM 1 508
C 0122	156808047	00 CAP 47 NO220	MF-10+50 10V CHIMIC RAD 508
C 0123	149003905	00 CAP 39 NO245	PF 5 % 63V CERAM 1 508
C 0124	145501410	00 CAP 0,1 LCC--	MF-20+80 25V CERAM 3 RAD 508 GFO 611 UB
C 0125	156808110	00 CAP 100 NO220	MF-10+50 10V CHIMIC RAD 508
C 0126	156807210	CAP 1000 ITT--	MF-10+50 10V CHIMIC RAD 508 EN 12-35-X
C 0127	156807210	CAP 1000 ITT--	MF-10+50 10V CHIMIC RAD 508 EN 12-35-X
C 0129	149511005	00 CAP 1000 NO242	PF 10 % 63V CERAM 2
C 0130	149005605	00 CAP 56 NO245	PF 5 % 63V CERAM 1 508

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Circuit Z3 - Carte X

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
C 0132	149008205	00	CAP 82 PF 5 % 63V CERAM 1 508 NO245
C 0133	149321002		CAP10000 PF-20+100 63V CERAM 2 NO242
C 0135	149008205	00	CAP 82 PF 5 % 63V CERAM 1 508 NO245
C 0136	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
C 0137	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
C 0138	164501533		CAP 33 MF-20+50 10V TANTAL GOUT NO203
C 0139	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
C 0140	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
C 0141	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
C 0142	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
C 0143	149321002		CAP10000 PF-20+100 63V CERAM 2 NO242
C 0144	145501410	00	CAP 0,1 MF-20+80 25V CERAM 3 RAD 508 LCC-- GFO 611 UB
C 0146	156808047	00	CAP 47 MF-10+50 10V CHIMIC RAD 508 NO220
C 0150	156808047	00	CAP 47 MF-10+50 10V CHIMIC RAD 508 NO220
C 0151	149511005	00	CAP 1000 PF 10 % 63V CERAM 2 NO242
C 0152	149001805	00	CAP 18 PF 5 % 63V CERAM 1 508 NO245
CR0001	200344480	01	DIOD SPCIAL* 1N4448 * 75 V SWITC TEXAS INDIC
CR0002	200344480	01	DIOD SPCIAL* 1N4448 * 75 V SWITC TEXAS INDIC
CR0003	200344480	01	DIOD SPCIAL* 1N4448 * 75 V SWITC TEXAS INDIC
CR0004	200344480	01	DIOD SPCIAL* 1N4448 * 75 V SWITC TEXAS INDIC
CR0006	200744840	00	DIOD LUMIN 3 MM ROUGE HP--- HLMP-1000 5082-4480
CR0007	200744840	00	DIOD LUMIN 3 MM ROUGE HP--- HLMP-1000 5082-4480
CR0008	200344480	01	DIOD SPCIAL* 1N4448 * 75 V SWITC TEXAS INDIC
CR0009	200707001	00	DIOD LUMIN 3 MM VERTE 2,30 SIEMS CQV35E
CR0010	200344480	01	DIOD SPCIAL* 1N4448 * 75 V SWITC TEXAS INDIC

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
CR0011	200303000	01	DIOD GENERL* 1N3595 *150 V 200 MA SESCO INDIC
CR0012	200342440	01	DIOD SPCIAL* 1N4244 * 20 V SWITC SESCO INDIC
CR0013	200344480	01	DIOD SPCIAL* 1N4448 * 75 V SWITC TEXAS INDIC
CR0014	200455120	01	DIOD ZENER *BZX 55 * 12 V 5,0MA SESCO INDIC
CR0015	200344480	01	DIOD SPCIAL* 1N4448 * 75 V SWITC TEXAS INDIC
CR0016	200344480	01	DIOD SPCIAL* 1N4448 * 75 V SWITC TEXAS INDIC
CR0017	200303000	01	DIOD GENERL* 1N3595 *150 V 200 MA SESCO INDIC
CR0018	200342440	01	DIOD SPCIAL* 1N4244 * 20 V SWITC SESCO INDIC
CR0019	200344480	01	DIOD SPCIAL* 1N4448 * 75 V SWITC TEXAS INDIC
CR0020	200344480	01	DIOD SPCIAL* 1N4448 * 75 V SWITC TEXAS INDIC
CR0021	200344480	01	DIOD SPCIAL* 1N4448 * 75 V SWITC TEXAS INDIC
CR0022	200344480	01	DIOD SPCIAL* 1N4448 * 75 V SWITC TEXAS INDIC
CR0023	200344480	01	DIOD SPCIAL* 1N4448 * 75 V SWITC TEXAS INDIC
CR0024	200344480	01	DIOD SPCIAL* 1N4448 * 75 V SWITC TEXAS INDIC
CR0025	200455220	01	DIOD ZENER *BZX 55 * 22 V 5,0MA SESCO INDIC
CR0026	200455220	01	DIOD ZENER *BZX 55 * 22 V 5,0MA SESCO INDIC
CR0027	200344480	01	DIOD SPCIAL* 1N4448 * 75 V SWITC TEXAS INDIC
CR0028	200344480	01	DIOD SPCIAL* 1N4448 * 75 V SWITC TEXAS INDIC
CR0029	200344480	01	DIOD SPCIAL* 1N4448 * 75 V SWITC TEXAS INDIC
CR0030	200344480	01	DIOD SPCIAL* 1N4448 * 75 V SWITC TEXAS INDIC
CR0031	200344480	01	DIOD SPCIAL* 1N4448 * 75 V SWITC TEXAS INDIC
CR0034	200344480	01	DIOD SPCIAL* 1N4448 * 75 V SWITC TEXAS INDIC
CR0035	200344480	01	DIOD SPCIAL* 1N4448 * 75 V SWITC TEXAS INDIC
CR0036	200344480	01	DIOD SPCIAL* 1N4448 * 75 V SWITC TEXAS INDIC
CR0037	200344480	01	DIOD SPCIAL* 1N4448 * 75 V SWITC TEXAS INDIC

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Circuit Z3 - Carte X

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
CR0038	200455051	01	DIOD ZENER *BZX 55 * 5,1V 5,0MA SESCO INDIC
CR0039	200455100	01	DIOD ZENER *BZX 55 * 10 V 5,0MA SESCO INDIC
CR0040	200455100	01	DIOD ZENER *BZX 55 * 10 V 5,0MA SESCO INDIC
CR0041	200344480	01	DIOD SPCIAL* 1N4448 * 75 V SWITC TEXAS INDIC
CR0042	200344480	01	DIOD SPCIAL* 1N4448 * 75 V SWITC TEXAS INDIC
J 0001	889504371	00	CONNEC BERG MALE COUDE 10C
J 0002	889504371	00	CONNEC BERG MALE COUDE 10C
J 0006	214421105	00	CONNEC CI IMP EMB FEM 10C PICO 396 MOLEX 26-11-2103 3215-10CH
J 0007	214421105	00	CONNEC CI IMP EMB FEM 10C PICO 396 MOLEX 26-11-2103 3215-10CH
J 0008	214421105	00	CONNEC CI IMP EMB FEM 10C PICO 396 MOLEX 26-11-2103 3215-10CH
J 0009	214421059	00	CONNEC CI IMP EMB FEM 5C PICO DORE 396 MOLEX 26-30-1053-3215-5CHG
K 0001	210901209	00	RELAIS REED 12V 855 OHM 1T CLARE CUP S 001 A112
Q 0001	200101840	01	TRANST LP SI N*BC 184 * X 55 N2081 INDIC
Q 0002	200101840	01	TRANST LP SI N*BC 184 * X 55 N2081 INDIC
Q 0003	200101840	01	TRANST LP SI N*BC 184 * X 55 N2081 INDIC
Q 0004	200123693	00	TRANST LP SI N*MPS 2369 * TO 92 MOTOR
Q 0005	200102142	01	TRANST LP SI P*BC 214 * X 55 N2081 INDIC
Q 0006	200142581	00	TRANST LP SI P*PN 4258 * TO 92 NS--- INDIC
Q 0007	200142581	00	TRANST LP SI P*PN 4258 * TO 92 NS--- INDIC
Q 0008	200123693	00	TRANST LP SI N*MPS 2369 * TO 92 MOTOR
Q 0009	200101840	01	TRANST LP SI N*BC 184 * X 55 N2081 INDIC
Q 0011	200142581	00	TRANST LP SI P*PN 4258 * TO 92 NS--- INDIC
Q 0012	200142581	00	TRANST LP SI P*PN 4258 * TO 92 NS--- INDIC
Q 0013	200101840	01	TRANST LP SI N*BC 184 * X 55 N2081 INDIC
Q 0014	200102142	01	TRANST LP SI P*BC 214 * X 55 N2081 INDIC
Q 0015	200142581	00	TRANST LP SI P*PN 4258 * TO 92 NS--- INDIC
Q 0016	200101840	01	TRANST LP SI N*BC 184 * X 55 N2081 INDIC
Q 0017	200101840	01	TRANST LP SI N*BC 184 * X 55 N2081 INDIC
Q 0018	200142581	00	TRANST LP SI P*PN 4258 * TO 92 NS--- INDIC
Q 0019	200102142	01	TRANST LP SI P*BC 214 * X 55 N2081 INDIC
Q 0020	270144161	01	TRANST TRI DE 1 2N4416 /200144160
Q 0021	200102142	01	TRANST LP SI P*BC 214 * X 55 N2081 INDIC
Q 0022	200101840	01	TRANST LP SI N*BC 184 * X 55 N2081 INDIC
Q 0023	200142581	00	TRANST LP SI P*PN 4258 * TO 92 NS--- INDIC
Q 0024	200142581	00	TRANST LP SI P*PN 4258 * TO 92 NS--- INDIC
Q 0025	200102142	01	TRANST LP SI P*BC 214 * X 55 N2081 INDIC
Q 0026	200142581	00	TRANST LP SI P*PN 4258 * TO 92 NS--- INDIC
Q 0027	200142581	00	TRANST LP SI P*PN 4258 * TO 92 NS--- INDIC
Q 0028	200102142	01	TRANST LP SI P*BC 214 * X 55 N2081 INDIC
Q 0029	270144161	01	TRANST TRI DE 1 2N4416 /200144160
Q 0030	200102142	01	TRANST LP SI P*BC 214 * X 55 N2081 INDIC
Q 0031	200101840	01	TRANST LP SI N*BC 184 * X 55 N2081 INDIC
Q 0032	200142581	00	TRANST LP SI P*PN 4258 * TO 92 NS--- INDIC
Q 0033	200102142	01	TRANST LP SI P*BC 214 * X 55 N2081 INDIC
Q 0034	200102142	01	TRANST LP SI P*BC 214 * X 55 N2081 INDIC
Q 0035	200102142	01	TRANST LP SI P*BC 214 * X 55 N2081 INDIC
Q 0036	200123693	00	TRANST LP SI N*MPS 2369 * TO 92 MOTOR
Q 0037	200123693	00	TRANST LP SI N*MPS 2369 * TO 92 MOTOR
Q 0038	200142581	00	TRANST LP SI P*PN 4258 * TO 92 NS--- INDIC
Q 0039	200142581	00	TRANST LP SI P*PN 4258 * TO 92 NS--- INDIC

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Circuit Z3 - Carte X

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION			
Q 0040	200142581	00	TRANST LP SI P*PN 4258 * NS--- INDIC			TO 92
Q 0042	200102142	01	TRANST LP SI P*BC 214 * N2081 INDIC			X 55
Q 0043	270123691	00	TRANST LP SI N*MPS 2369 * MOTOR TRIE			TO 92
Q 0044	200142581	00	TRANST LP SI P*PN 4258 * NS--- INDIC T			TO 92
Q 0045	270142584	00	TRANST LP SI P*PN 4258 * NS--- INDIC TRIÉ			TO 92
Q 0046	200104920	00	TRANST LP BF 492 * MOTOR			TO 92
Q 0047	200155510	00	TRANST LP SI N*2N 5551 * MOTOR			TO 92
Q 0048	200104920	00	TRANST LP BF 492 * MOTOR			TO 92
Q 0049	200155510	00	TRANST LP SI N*2N 5551 * MOTOR			TO 92
Q 0050	200123693	00	TRANST LP SI N*MPS 2369 * MOTOR			TO 92
Q 0052	200101840	01	TRANST LP SI N*BC 184 * N2081 INDIC			X 55
Q 0053	200102142	01	TRANST LP SI P*BC 214 * N2081 INDIC			X 55
Q 0054	200101840	01	TRANST LP SI N*BC 184 * N2081 INDIC			X 55
Q 0055	200101840	01	TRANST LP SI N*BC 184 * N2081 INDIC			X 55
Q 0056	200101840	01	TRANST LP SI N*BC 184 * N2081 INDIC			X 55
Q 0057	200101840	01	TRANST LP SI N*BC 184 * N2081 INDIC			X 55
Q 0058	200102142	01	TRANST LP SI P*BC 214 * N2081 INDIC			X 55
Q 0059	200142581	00	TRANST LP SI P*PN 4258 * NS--- INDIC			TO 92
Q 0060	200142581	00	TRANST LP SI P*PN 4258 * NS--- INDIC			TO 92
Q 0061	200142581	00	TRANST LP SI P*PN 4258 * NS--- INDIC			TO 92
Q 0062	200102143	01	TRANST LP SI P*BC 214C * TEXAS			
Q 0063	200102142	01	TRANST LP SI P*BC 214 * N2081 INDIC			X 55
Q 0064	200102143	01	TRANST LP SI P*BC 214C * TEXAS			
Q 0065	200102143	01	TRANST LP SI P*BC 214C * TEXAS			
Q 0066	200102143	01	TRANST LP SI P*BC 214C * TEXAS			

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION					
Q 0067	200102142	01	TRANST LP SI P*BC 214 * N2081 INDIC					X 55
R 0001	016410330		RES 3,3 K 5 % 0,25W CARBON N0102					
R 0002	016420240		RES 24 K 5 % 0,25W CARBON N0102					
R 0003	016403600		RES 360 OHM 5 % 0,25W CARBON N0102					
R 0004	016420240		RES 24 K 5 % 0,25W CARBON N0102					
R 0005	016420240		RES 24 K 5 % 0,25W CARBON N0102					
R 0006	016420200		RES 20 K 5 % 0,25W CARBON N0102					
R 0007	016420200		RES 20 K 5 % 0,25W CARBON N0102					
R 0008	016422200		RES 220 K 5 % 0,25W CARBON N0102					
R 0009	041310196		RES 1,96 K 1 % 0,25W METAL N0112					50 PPM
R 0010	016400100		RES 10 OHM 5 % 0,25W CARBON N0102					
R 0011	041310511		RES 5,11 K 1 % 0,25W METAL N0112					50 PPM
R 0012	016401000		RES 100 OHM 5 % 0,25W CARBON N0102					
R 0013	016400470		RES 47 OHM 5 % 0,25W CARBON N0102					
R 0014	016405100		RES 510 OHM 5 % 0,25W CARBON N0102					
R 0015	016410390		RES 3,9 K 5 % 0,25W CARBON N0102					
R 0016	016410220		RES 2,2 K 5 % 0,25W CARBON N0102					
R 0017	016422200		RES 220 K 5 % 0,25W CARBON N0102					
R 0018	016401000		RES 100 OHM 5 % 0,25W CARBON N0102					
R 0019	041320324	00	RES 32,4 K 1 % 0,25W METAL N0112					50 PPM
R 0020	016410180		RES 1,8 K 5 % 0,25W CARBON N0102					
R 0021	016410100	00	RES 1,0 K 5 % 0,25W CARBON N0102					
R 0022	016405100		RES 510 OHM 5 % 0,25W CARBON N0102					
R 0023	016420470		RES 47 K 5 % 0,25W CARBON N0102					
R 0024	016420150		RES 15 K 5 % 0,25W CARBON N0102					

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Circuit Z3 - Carte X

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
R 0025	016422200		RES 220 K 5 % 0,25W CARBON NO102
R 0026	897500213	00	POTC•INV 1P 10K 20%A VOIR PLAN 5224 RUWID 0514 300
R 0027	016420100		RES 10 K 5 % 0,25W CARBON NO102
R 0028	016420100		RES 10 K 5 % 0,25W CARBON NO102
R 0029	016405100		RES 510 OHM 5 % 0,25W CARBON NO102
R 0030	016400100		RES 10 OHM 5 % 0,25W CARBON NO102
R 0031	016403600		RES 360 OHM 5 % 0,25W CARBON NO102
R 0032	016403600		RES 360 OHM 5 % 0,25W CARBON NO102
R 0034	016401000		RES 100 OHM 5 % 0,25W CARBON NO102
R 0035	016402000		RES 200 OHM 5 % 0,25W CARBON NO102
R 0036	016400470		RES 47 OHM 5 % 0,25W CARBON NO102
R 0037	016401000		RES 100 OHM 5 % 0,25W CARBON NO102
R 0038	016405100		RES 510 OHM 5 % 0,25W CARBON NO102
R 0039	016400470		RES 47 OHM 5 % 0,25W CARBON NO102
R 0040	897500213	00	POTC•INV 1P 10K 20%A VOIR PLAN 5224 RUWID 0514 300
R 0041	016410330		RES 3,3 K 5 % 0,25W CARBON NO102
R 0042	016410150		RES 1,5 K 5 % 0,25W CARBON NO102
R 0043	016410470		RES 4,7 K 5 % 0,25W CARBON NO102
R 0044	016403600		RES 360 OHM 5 % 0,25W CARBON NO102
R 0045	016403600		RES 360 OHM 5 % 0,25W CARBON NO102
R 0046	105400510	00	POT 1 M 20%A CAR TRIM PLAQ HOR CI PIHER PT10 LV
R 0047	105400510	00	POT 1 M 20%A CAR TRIM PLAQ HOR CI PIHER PT10 LV
R 0048	105400510	00	POT 1 M 20%A CAR TRIM PLAQ HOR CI PIHER PT10 LV
R 0049	016421500		RES 150 K 5 % 0,25W CARBON NO102
R 0050	016421500		RES 150 K 5 % 0,25W CARBON NO102

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
R 0051	041320499		RES 49,9 K 1 % 0,25W METAL 50 PPM NO112
R 0052	041320604		RES 60,4 K 1 % 0,25W METAL 50 PPM NO112
R 0053	016420120		RES 12 K 5 % 0,25W CARBON NO102
R 0054	041310255		RES 2,55 K 1 % 0,25W METAL 50 PPM NO112
R 0055	041310511		RES 5,11 K 1 % 0,25W METAL 50 PPM NO112
R 0056	041310499		RES 4,99 K 1 % 0,25W METAL 50 PPM NO112
R 0057	016410330		RES 3,3 K 5 % 0,25W CARBON NO102
R 0058	016410330		RES 3,3 K 5 % 0,25W CARBON NO102
R 0059	016410330		RES 3,3 K 5 % 0,25W CARBON NO102
R 0060	016431000		RES 1,0 M 5 % 0,25W CARBON NO102
R 0061	016431000		RES 1,0 M 5 % 0,25W CARBON NO102
R 0062	897500309	00	POTC DBCS•INT 220KAV•47KAR 20%A CI RUWID 0811-301E
R 0063	105400510	00	POT 1 M 20%A CAR TRIM PLAQ HOR CI PIHER PT10 LV
R 0064	105400510	00	POT 1 M 20%A CAR TRIM PLAQ HOR CI PIHER PT10 LV
R 0065	016421500		RES 150 K 5 % 0,25W CARBON NO102
R 0066	016421500		RES 150 K 5 % 0,25W CARBON NO102
R 0067	041320475		RES 47,5 K 1 % 0,25W METAL 50 PPM NO112
R 0068	016420100		RES 10 K 5 % 0,25W CARBON NO102
R 0069	041320604		RES 60,4 K 1 % 0,25W METAL 50 PPM NO112
R 0070	041310255		RES 2,55 K 1 % 0,25W METAL 50 PPM NO112
R 0071	041310487		RES 4,87 K 1 % 0,25W METAL 50 PPM NO112
R 0072	075231505	00	RES 5,05 K 0,5 % 0,3 W METAL 50 PPM DRALR SMA 0207
R 0073	016431000		RES 1,0 M 5 % 0,25W CARBON NO102
R 0074	016431000		RES 1,0 M 5 % 0,25W CARBON NO102
R 0075	016431000		RES 1,0 M 5 % 0,25W CARBON NO102

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Circuit Z3 - Carte X

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
R 0076	897504323	00	POTENTIO RECOUPE DE 118424347 RUWID 0503-306
R 0077	016420240		RES 24 K 5 % 0,25W CARBON NO102
R 0078	016420100		RES 10 K 5 % 0,25W CARBON NO102
R 0079	016400100		RES 10 OHM 5 % 0,25W CARBON NO102
R 0080	016410100	00	RES 1,0 K 5 % 0,25W CARBON NO102
R 0081	016410470		RES 4,7 K 5 % 0,25W CARBON NO102
R 0092	016410100	00	RES 1,0 K 5 % 0,25W CARBON NO102
R 0083	016403600		RES 360 OHM 5 % 0,25W CARBON NO102
R 0084	016406800		RES 680 OHM 5 % 0,25W CARBON NO102
R 0085	016410120		RES 1,2 K 5 % 0,25W CARBON NO102
R 0086	041310182		RES 1,82 K 1 % 0,25W METAL 50 PPM NO112
R 0087	016420100		RES 10 K 5 % 0,25W CARBON NO102
R 0089	016401500		RES 150 OHM 5 % 0,25W CARBON NO102
R 0090	016402000		RES 200 OHM 5 % 0,25W CARBON NO102
R 0091	016405100		RES 510 OHM 5 % 0,25W CARBON NO102
R 0095	041310562		RES 5,62 K 1 % 0,25W METAL 50 PPM NO112
R 0096	041310294		RES 2,94 K 1 % 0,25W METAL 50 PPM NO112
R 0097	016404700		RES 470 OHM 5 % 0,25W CARBON NO102
R 0098	016405100		RES 510 OHM 5 % 0,25W CARBON NO102
R 0099	016420390		RES 39 K 5 % 0,25W CARBON NO102
R 0100	016420100		RES 10 K 5 % 0,25W CARBON NO102
R 0101	016420390		RES 39 K 5 % 0,25W CARBON NO102
R 0102	016420100		RES 10 K 5 % 0,25W CARBON NO102
R 0103	016410470		RES 4,7 K 5 % 0,25W CARBON NO102
R 0104	016403000		RES 300 OHM 5 % 0,25W CARBON NO102
R 0105	016410470		RES 4,7 K 5 % 0,25W CARBON NO102
R 0106	016401000		RES 100 OHM 5 % 0,25W CARBON NO102
R 0107	016405100		RES 510 OHM 5 % 0,25W CARBON NO102
R 0108	016420150		RES 15 K 5 % 0,25W CARBON NO102
R 0109	016405100		RES 510 OHM 5 % 0,25W CARBON NO102
R 0110	016410620		RES 6,2 K 5 % 0,25W CARBON NO102
R 0111	016410820		RES 8,2 K 5 % 0,25W CARBON NO102
R 0112	041310487		RES 4,87 K 1 % 0,25W METAL 50 PPM NO112
R 0113	041310698		RES 6,98 K 1 % 0,25W METAL 50 PPM NO112
R 0114	016410390		RES 3,9 K 5 % 0,25W CARBON NO102
R 0115	041310200		RES 2 K 1 % 0,25W METAL 50 PPM NO112
R 0116	041310806		RES 8,06 K 1 % 0,25W METAL 50 PPM NO112
R 0117	041301580		RES 158 OHM 1 % 0,25W METAL 50 PPM NO112
R 0118	016400220		RES 22 OHM 5 % 0,25W CARBON NO102
R 0119	016401500		RES 150 OHM 5 % 0,25W CARBON NO102
R 0120	016403600		RES 360 OHM 5 % 0,25W CARBON NO102
R 0122	016410160		RES 1,6 K 5 % 0,25W CARBON NO102
R 0123	016400470		RES 47 OHM 5 % 0,25W CARBON NO102
R 0124	016420150		RES 15 K 5 % 0,25W CARBON NO102
R 0126	016410330		RES 3,3 K 5 % 0,25W CARBON NO102
R 0127	016401800		RES 180 OHM 5 % 0,25W CARBON NO102
R 0128	016420300		RES 30 K 5 % 0,25W CARBON NO102
R 0129	105400322	01	POT 22 K 20%A CAR TRIM PLAQ HOR C1 PIHER PTIO LV
R 0130	016410100	00	RES 1,0 K 5 % 0,25W CARBON NO102
R 0131	016420150		RES 15 K 5 % 0,25W CARBON NO102

Circuit Z3 - Carte X

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
R 0132	016410100	00	RES 1,0 K 5 % 0,25W CARBON NO102
R 0133	041310255		RES 2,55 K 1 % 0,25W METAL 50 PPM NO112
R 0134	015402400		RES 240 OHM 5 % 0,25W CARBON NO102
R 0135	016420150		RES 15 K 5 % 0,25W CARBON NO102
R 0136	016410470		RES 4,7 K 5 % 0,25W CARBON NO102
R 0137	016410100	00	RES 1,0 K 5 % 0,25W CARBON NO102
R 0138	015420300		RES 30 K 5 % 0,25W CARBON NO102
R 0139	041310604		RES 6,04 K 1 % 0,25W METAL 50 PPM NO112
R 0140	016410200		RES 2,0 K 5 % 0,25W CARBON NO102
R 0141	016420100		RES 10 K 5 % 0,25W CARBON NO102
R 0142	016410110		RES 1,1 K 5 % 0,25W CARBON NO102
R 0143	016420100		RES 10 K 5 % 0,25W CARBON NO102
R 0144	016420100		RES 10 K 5 % 0,25W CARBON NO102
R 0145	016420100		RES 10 K 5 % 0,25W CARBON NO102
R 0146	016410100	00	RES 1,0 K 5 % 0,25W CARBON NO102
R 0147	016401500		RES 150 OHM 5 % 0,25W CARBON NO102
R 0148	016420100		RES 10 K 5 % 0,25W CARBON NO102
R 0149	041310511		RES 5,11 K 1 % 0,25W METAL 50 PPM NO112
R 0150	015405600		RES 560 OHM 5 % 0,25W CARBON NO102
R 0151	016410330		RES 3,3 K 5 % 0,25W CARBON NO102
R 0152	016410100	00	RES 1,0 K 5 % 0,25W CARBON NO102
R 0153	016420150		RES 15 K 5 % 0,25W CARBON NO102
R 0154	015405100		RES 510 OHM 5 % 0,25W CARBON NO102
R 0155	016402000		RES 200 OHM 5 % 0,25W CARBON NO102
R 0156	016403300		RES 330 OHM 5 % 0,25W CARBON NO102
R 0157	016400390		RES 39 OHM 5 % 0,25W CARBON NO102
R 0158	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0159	041310487		RES 4,87 K 1 % 0,25W METAL 50 PPM NO112
R 0160	016410200		RES 2,0 K 5 % 0,25W CARBON NO102
R 0161	016401000		RES 100 OHM 5 % 0,25W CARBON NO102
R 0162	016410100	00	RES 1,0 K 5 % 0,25W CARBON NO102
R 0163	016410330		RES 3,3 K 5 % 0,25W CARBON NO102
R 0165	016401800		RES 180 OHM 5 % 0,25W CARBON NO102
R 0166	016420150		RES 15 K 5 % 0,25W CARBON NO102
R 0167	016410160		RES 1,6 K 5 % 0,25W CARBON NO102
R 0168	015400470		RES 47 OHM 5 % 0,25W CARBON NO102
R 0169	016420240		RES 24 K 5 % 0,25W CARBON NO102
R 0170	016403300		RES 330 OHM 5 % 0,25W CARBON NO102
R 0172	016401000		RES 100 OHM 5 % 0,25W CARBON NO102
R 0174	016400750		RES 75 OHM 5 % 0,25W CARBON NO102
R 0175	015402000		RES 200 OHM 5 % 0,25W CARBON NO102
R 0176	015405100		RES 510 OHM 5 % 0,25W CARBON NO102
R 0177	016408200		RES 820 OHM 5 % 0,25W CARBON NO102
R 0178	016400330		RES 33 OHM 5 % 0,25W CARBON NO102
R 0179	016410470		RES 4,7 K 5 % 0,25W CARBON NO102
R 0180	016420150		RES 15 K 5 % 0,25W CARBON NO102
R 0181	016420130		RES 13 K 5 % 0,25W CARBON NO102
R 0182	016410470		RES 4,7 K 5 % 0,25W CARBON NO102
R 0183	016420150		RES 15 K 5 % 0,25W CARBON NO102
R 0184	016410470		RES 4,7 K 5 % 0,25W CARBON NO102

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Circuit Z3 - Carte X

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
R 0185	016422000		RES 200 K 5 % 0,25W CARBON NO102
R 0186	016400100		RES 10 OHM 5 % 0,25W CARBON NO102
R 0187	041310715		RES 7,15 K 1 % 0,25W METAL 50 PPM NO112
R 0188	016410470		RES 4,7 K 5 % 0,25W CARBON NO102
R 0189	016410200		RES 2,0 K 5 % 0,25W CARBON NO102
R 0190	016410100	00	RES 1,0 K 5 % 0,25W CARBON NO102
R 0191	041310715		RES 7,15 K 1 % 0,25W METAL 50 PPM NO112
R 0192	016410470		RES 4,7 K 5 % 0,25W CARBON NO102
R 0193	016410200		RES 2,0 K 5 % 0,25W CARBON NO102
R 0194	016405100		RES 510 OHM 5 % 0,25W CARBON NO102
R 0195	016410200		RES 2,0 K 5 % 0,25W CARBON NO102
R 0196	016408200		RES 820 OHM 5 % 0,25W CARBON NO102
R 0198	897500310	00	POTC DBCS 2,2KAV+22KAR 20%A CI RUWID 0810-300
R 0199	016420470		RES 47 K 5 % 0,25W CARBON NO102
R 0200	016410360		RES 3,6 K 5 % 0,25W CARBON NO102
R 0201	041310105		RES 1,05 K 1 % 0,25W METAL 50 PPM NO112
R 0202	016400010		RES 1,0 OHM 5 % 0,25W CARBON NO102
R 0203	041310200		RES 2 K 1 % 0,25W METAL 50 PPM NO112
R 0204	041305760		RES 576 OHM 1 % 0,25W METAL 50 PPM NO112
R 0205	016402000		RES 200 OHM 5 % 0,25W CARBON NO102
R 0206	041305230		RES 523 OHM 1 % 0,25W METAL 50 PPM NO112
R 0207	041310200		RES 2 K 1 % 0,25W METAL 50 PPM NO112
R 0208	041301690	00	RES 169 OHM 1 % 0,25W METAL 50 PPM NO112
R 0209	041305760		RES 576 OHM 1 % 0,25W METAL 50 PPM NO112
R 0210	016400750		RES 75 OHM 5 % 0,25W CARBON NO102

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
R 0211	041307680		RES 768 OHM 1 % 0,25W METAL 50 PPM NO112
R 0212	016400620		RES 62 OHM 5 % 0,25W CARBON NO102
R 0213	016400010		RES 1,0 OHM 5 % 0,25W CARBON NO102
R 0214	105904700		PUT 470 U 20%A CER TRIM PLAQ HOR CI NO332
R 0215	016410130		RES 1,3 K 5 % 0,25W CARBON NO102
R 0216	105900470		POT 47 U 20%A CER TRIM PLAQ HOR CI NO332
R 0217	016410100	00	RES 1,0 K 5 % 0,25W CARBON NO102
R 0218	016410100	00	RES 1,0 K 5 % 0,25W CARBON NO102
R 0219	041302150		RES 215 OHM % 0,25W METAL NO 112
R 0220	041305760		RES 576 OHM 1 % 0,25W METAL 50 PPM NO112
R 0221	041306650		RES 665 OHM 1 % 0,25W METAL 50 PPM NO112
R 0222	041310590		RES 5,9 K 1 % 0,25W METAL 50 PPM NO112
R 0223	075342182	00	RES 18,2 K 1 % 0,5 W METAL 50 PPM DRALR SMA 0411
R 0224	016403000		RES 300 OHM 5 % 0,25W CARBON NO102
R 0225	016410160		RES 1,6 K 5 % 0,25W CARBON NO102
R 0226	016410160		RES 1,6 K 5 % 0,25W CARBON NO102
R 0230	016405600		RES 560 OHM 5 % 0,25W CARBON NO102
R 0231	075342200		RES 20 K 1 % 0,5 W METAL 50 PPM DRALR SMA 0411
R 0232	016400470		RES 47 OHM 5 % 0,25W CARBON NO102
R 0233	016400220		RES 22 OHM 5 % 0,25W CARBON NO102
R 0234	016423600		RES 360 K 5 % 0,25W CARBON NO102
R 0235	016404300		RES 430 OHM 5 % 0,25W CARBON NO102
R 0236	016423600		RES 360 K 5 % 0,25W CARBON NO102
R 0237	016405600		RES 560 OHM 5 % 0,25W CARBON NO102
R 0238	075342200		RES 20 K 1 % 0,5 W METAL 50 PPM DRALR SMA 0411

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Circuit Z3 - Carte X

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
R 0239	075342182	00	RES 18,2 K 1 % 0,5 W METAL 50 PPM DRALR SMA 0411
R 0240	016403000		RES 300 OHM 5 % 0,25W CARBON NO102
R 0241	016401000		RES 100 OHM 5 % 0,25W CARBON NO102
R 0242	016400220		RES 22 OHM 5 % 0,25W CARBON NO102
R 0243	016400470		RES 47 OHM 5 % 0,25W CARBON NO102
R 0244	016420750		RES 75 K 5 % 0,25W CARBON NO102
R 0245	041310274		RES 2,74 K 1 % 0,25W METAL 50 PPM NO112
R 0246	016407500		RES 750 OHM 5 % 0,25W CARBON NO102
R 0247	897500312	00	POTC + INT 2P 1K 20%A CI RUWID 0803.324
R 0248	016401000		RES 100 OHM 5 % 0,25W CARBON NO102
R 0249	016401500		RES 150 OHM 5 % 0,25W CARBON NO102
R 0250	016420100		RES 10 K 5 % 0,25W CARBON NO102
R 0251	016420100		RES 10 K 5 % 0,25W CARBON NO102
R 0252	016420150		RES 15 K 5 % 0,25W CARBON NO102
R 0253	016410100	00	RES 1,0 K 5 % 0,25W CARBON NO102
R 0254	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0255	016422200		RES 220 K 5 % 0,25W CARBON NO102
R 0256	041320165		RES 16,5 K 1 % 0,25W METAL 50 PPM NO112
R 0257	041320165		RES 16,5 K 1 % 0,25W METAL 50 PPM NO112
R 0258	041320165		RES 16,5 K 1 % 0,25W METAL 50 PPM NO112
R 0260	041321910		RES 191 K 1 % 0,25W METAL 50 PPM NO112
R 0261	041320249		RES 24,9 K 1 % 0,25W METAL 50 PPM NO112
R 0262	041320249		RES 24,9 K 1 % 0,25W METAL 50 PPM NO112
R 0263	105921000		POT 10 K 20%A CER TRIM PLAQ HOR CI NO332
R 0264	016420750		RES 75 K 5 % 0,25W CARBON NO102

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
R 0265	016420470		RES 47 K 5 % 0,25W CARBON NO102
R 0266	105924700		POT 47 K 20%A CER TRIM PLAQ HOR CI NO332
R 0267	016410100	00	RES 1,0 K 5 % 0,25W CARBON NO102
R 0268	041320301		RES 30,1 K 1 % 0,25W METAL 50 PPM NO112
R 0269	041320301		RES 30,1 K 1 % 0,25W METAL 50 PPM NO112
R 0270	041320100		RES 10 K 1 % 0,25W METAL 50 PPM NO112
R 0271	016400100		RES 10 OHM 5 % 0,25W CARBON NO102
R 0272	016400100		RES 10 OHM 5 % 0,25W CARBON NO102
R 0273	075344100		RES 1 M 1 % 0,5 W METAL 50 PPM DRALR SMA 0411
R 0274	105914700		POT 4,7K 20%A CER TRIM PLAQ HOR CI NO332
R 0275	075232976	00	RES 97,6 K 0,5 % 0,35W METAL 50 PPM DRALR SMA 0207
R 0276	105904700		POT 470 U 20%A CER TRIM PLAQ HOR CI NO332
R 0277	075231942		RES 9,42 K 0,5 % 0,3 W METAL 50 PPM DRALR SMA 0207
R 0278	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0279	016422200		RES 220 K 5 % 0,25W CARBON NO102
R 0280	016422200		RES 220 K 5 % 0,25W CARBON NO102
R 0281	016402400		RES 240 OHM 5 % 0,25W CARBON NO102
R 0282	016420220		RES 22 K 5 % 0,25W CARBON NO102
R 0283	016420220		RES 22 K 5 % 0,25W CARBON NO102
R 0294	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0285	041320137		RES 13,7 K 1 % 0,25W METAL 50 PPM NO112
R 0286	105912200		POT 2,2K 20%A CER TRIM PLAQ HOR CI NO332
R 0287	041331000		RES 1 M 1 % 0,25W METAL 100 PPM NO112
R 0288	105922200		POT 22 K 20%A CER TRIM PLAQ HOR CI NO332
R 0289	041321430		RES 143 K 1 % 0,25W METAL 50 PPM NO112

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Circuit Z3 - Carte X

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
R 0290	016423600		RES 360 K 5 % 0,25W CARBON NO102
R 0291	016420270		RES 27 K 5 % 0,25W CARBON NO102
R 0292	016422200		RES 220 K 5 % 0,25W CARBON NO102
R 0293	016420200		RES 20 K 5 % 0,25W CARBON NO102
R 0294	016402700		RES 270 OHM 5 % 0,25W CARBON NO102
R 0295	016428200		RES 820 K 5 % 0,25W CARBON NO102
R 0297	041320649		RES 64,9 K 1 % 0,25W METAL 50 PPM NO112
R 0298	016420100		RES 10 K 5 % 0,25W CARBON NO102
R 0299	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0300	016403300		RES 330 OHM 5 % 0,25W CARBON NO102
R 0301	016420470		RES 47 K 5 % 0,25W CARBON NO102
R 0302	016410470		RES 4,7 K 5 % 0,25W CARBON NO102
R 0303	016410470		RES 4,7 K 5 % 0,25W CARBON NO102
R 0304	016420270		RES 27 K 5 % 0,25W CARBON NO102
R 0305	016410200		RES 2,0 K 5 % 0,25W CARBON NO102
R 0306	016420270		RES 27 K 5 % 0,25W CARBON NO102
R 0307	016402700		RES 270 OHM 5 % 0,25W CARBON NO102
R 0308	016420150		RES 15 K 5 % 0,25W CARBON NO102
R 0309	016401000		RES 100 OHM 5 % 0,25W CARBON NO102
R 0310	016410100	00	RES 1,0 K 5 % 0,25W CARBON NO102
R 0311	016700015	00	RES 1,5 OHM 5 % 0,5 W CARBON NO106
R 0312	041310604		RES 6,04 K 1 % 0,25W METAL 50 PPM NO112
R 0313	041306190		RES 619 OHM 1 % 0,25W METAL 50 PPM NO112
R 0314	016400330		RES 33 OHM 5 % 0,25W CARBON NO102
R 0315	016421000		RES 100 K 5 % 0,25W CARBON NO102

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
R 0316	016420150		RES 15 K 5 % 0,25W CARBON NO102
R 0317	041310562		RES 5,62 K 1 % 0,25W METAL 50 PPM NO112
R 0318	016402000		RES 200 OHM 5 % 0,25W CARBON NO102
R 0319	016420150		RES 15 K 5 % 0,25W CARBON NO102
R 0320	016420150		RES 15 K 5 % 0,25W CARBON NO102
R 0321	108600210		POT 1 K 20%A CER TRIM ROND HOR 0,75W CI SFERN T7YB
R 0322	041310249		RES 2,49 K 1 % 0,25W METAL 50 PPM NO112
R 0323	016400470		RES 47 OHM 5 % 0,25W CARBON NO102
R 0324	016431000		RES 1,0 M 5 % 0,25W CARBON NO102
R 0325	016420470		RES 47 K 5 % 0,25W CARBON NO102
R 0326	016400010		RES 1,0 OHM 5 % 0,25W CARBON NO102
R 0329	016410510		RES 5,1 K 5 % 0,25W CARBON NO102
R 0330	041310294		RES 2,94 K 1 % 0,25W METAL 50 PPM NO112
R 0331	041310340		RES 3,4 K 1 % 0,25W METAL 50 PPM NO112
R 0332	016410510		RES 5,1 K 5 % 0,25W CARBON NO102
R 0333	016400100		RES 10 OHM 5 % 0,25W CARBON NO102
R 0334	016410100	00	RES 1,0 K 5 % 0,25W CARBON NO102
R 0335	016410180		RES 1,8 K 5 % 0,25W CARBON NO102
R 0337	016410100	00	RES 1,0 K 5 % 0,25W CARBON NO102
R 0338	016405100		RES 510 OHM 5 % 0,25W CARBON NO102
R 0339	016420100		RES 10 K 5 % 0,25W CARBON NO102
R 0340	016410200		RES 2,0 K 5 % 0,25W CARBON NO102
R 0341	016410200		RES 2,0 K 5 % 0,25W CARBON NO102
R 0342	016408200		RES 820 OHM 5 % 0,25W CARBON NO102
R 0343	016431000		RES 1,0 M 5 % 0,25W CARBON NO102

Circuit Z3 - Carte X

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
R 0344	016421000		RES 100 K 5 % 0,25W CARBON NO102
R 0345	016410100	00	RES 1,0 K 5 % 0,25W CARBON NO102
R 0346	016410470		RES 4,7 K 5 % 0,25W CARBON NO102
R 0347	016402000		RES 200 OHM 5 % 0,25W CARBON NO102
R 0348	035203010		RES 10 OHM 5 % 0,12W METAL 100 PPM NO101
R 0352	016400390		RES 39 OHM 5 % 0,25W CARBON NO102
RR0001	889200009	00	RESISTANCE RESEAU 5276
RR0002	889200009	00	RESISTANCE RESEAU 5276
RR0003	889200009	00	RESISTANCE RESEAU 5276
RR0004	889200009	00	RESISTANCE RESEAU 5276
RR0005	889200008	00	RESISTANCE RESEAU 5276
RR0006	889200008	00	RESISTANCE RESEAU 5276
S 0001	792510047	00	NOMEN COMMUTATEUR 8 DE TEMPS 5224
U 0001	890100174	00	CI INTEGRE MEMOIRE U1 CI Z3 5224
U 0002	264040500		CI INT LOG CMS MC 14050BCP DIVER DIL 16 N2205
U 0003	264040010		CI INT LOG CMS MC 14001BCP PORTE TO 116 N2205
U 0004	264044330	01	CI INT LOG CMS*MC 14433P *CON A/D DIL 24 MOTOR
U 0005	264040130		CI INT LOG CMS MC 14013BCP BISTA TO 116 N2205
U 0006	264040130		CI INT LOG CMS MC 14013BCP BISTA TO 116 N2205
U 0007	264040010		CI INT LOG CMS MC 14001BCP PORTE TO 116 N2205
U 0008	264040130		CI INT LOG CMS MC 14013BCP BISTA TO 116 N2205
U 0009	264040130		CI INT LOG CMS MC 14013BCP BISTA TO 116 N2205
U 0010	264040660	00	CI INT LOG CMS*MC 14066BCP *DIVER DIL 14 MOTOR
U 0012	264040660	00	CI INT LOG CMS*MC 14066BCP *DIVER DIL 14 MOTOR
U 0013	265000820	00	CI INT LIN BIP TL 082CP AMP OP DIL 8 TEXAS
U 0014	265000820	00	CI INT LIN BIP TL 082CP AMP OP DIL 8 TEXAS
U 0015	265000820	00	CI INT LIN BIP TL 082CP AMP OP DIL 8 TEXAS
U 0016	266403046		CI INT LIN BIP CA 3046 DIVER TO 116 N2105
U 0017	261510216		CI INT LOG ECL MC 10216P DIVER DIL 16 N2204
U 0018	265003580	00	CI INT LIN BIP*LM 358N *AMP OP DIL 8 NS---
U 0019	261510216		CI INT LOG ECL MC 10216P DIVER DIL 16 N2204
U 0020	265000820	00	CI INT LIN BIP TL 082CP AMP OP DIL 8 TEXAS
U 0021	264040510	01	CI INT LOG CMS*MC 14051BPC *MU-PLEX DIL 16 N2205
U 0022	264040511	00	CI INT LOG CMS*MC 14051BAL *MU-PLEX DIL 16 MOTOR
U 0023	261510115		CI INT LOG ECL MC 10115P DIVER DIL 16 N2204
U 0024	261510131		CI INT LOG ECL MC 10131P BISTA DIL 16 N2204
U 0025	266403046		CI INT LIN BIP CA 3046 DIVER TO 116 N2105
U 0026	265000820	00	CI INT LIN BIP TL 082CP AMP OP DIL 8 TEXAS
U 0027	266403046		CI INT LIN BIP CA 3046 DIVER TO 116 N2105
U 0028	261510115		CI INT LOG ECL MC 10115P DIVER DIL 16 N2204
U 0029	261510131		CI INT LOG ECL MC 10131P BISTA DIL 16 N2204
U 0030	264040660	00	CI INT LOG CMS*MC 14066BCP *DIVER DIL 14 MOTOR
U 0032	261510115		CI INT LOG ECL MC 10115P DIVER DIL 16 N2204
U 0033	264040710		CI INT LOG CMS MC 14071BCP PORTE DIL 14 N2205
U 0034	265000820	00	CI INT LIN BIP TL 082CP AMP OP DIL 8 TEXAS
Z 0003	752240713		RECAP CI Z3 5224

7 5224 1143 Circuit Z4 - Ligne à retard (-)

COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
214447334		CONNEC CI IMP EMB MAL IC POST BERG- 47314
304322032	00	RONDEL ONDUL 3,2X 6 X 0,4 CUPRO BERRYL NOMEL B-52030170
310000300		ECROU H M 3 ACIER INOX N6203 NF-E27-411
345083100		ENTRET HEXA 5 X10 M 3 LAITN NICK N6718 ENMET 2
345093080	00	PILIER HEXA 5 X 8 M 3 LAITN NICK N6708
752240704	00	RECAP CI Z4LAR5224
8660340594G	00	PILIER POUR BLINDAGE GALVA REPRISE 4795
867522242MG	00	PLAQUETTE BLINDAGE DE LAR 5224
899009714	00	PLAN DE MONTAGE S/E LIGNE A RETARD 5547

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Circuit Z5 - Carte voltmètre

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
	200241400		SUPP I4C DIL 14 SOUD CU-AL ETAME N2500
	200241407	00	SUPP I4C DIL 14 SOUD BRONZ ETAME STAND TEXAS C82-14-04
	200241600		SUPP I6C DIL 16 SOUD CU-AL ETAME N2500
	303910171	00	RONDEL PLAT 10,2X17 X 1 PRESS PAHN MFOM- 134
	652240823	00	SCHEMA ELECTRIQUE VOLTMETRE 5224
	845134043	00	ENTRETOISE SUPPORT CI -5220-24-27-77-
	874041026	00	BOUTON COMMUTATEUR ADISQUE 5537
C 0001	149321002		CAP10000 PF-20+100 63V CERAM 2 N0242
C 0002	176505410	00	CAP 0,1 MF 10 % 250V POLYEST RAD 100 SIEMS B32511-D3104-K
CR0001	200707001	00	DIOD LUMIN 3 MM VERTE 2,30 SIEMS CQV35E
CR0002	200707001	00	DIOD LUMIN 3 MM VERTE 2,30 SIEMS CQV35E
CR0003	200707001	00	DIOD LUMIN 3 MM VERTE 2,30 SIEMS CQV35E
CR0004	200707001	00	DIOD LUMIN 3 MM VERTE 2,30 SIEMS CQV35E
J 0001	214421104	01	CONNEC CI IMP EMB FEM 10C PICO 254 MOLEX 38-00-1400 4455C/BAA
J 0002	214421104	01	CONNEC CI IMP EMB FEM 10C PICO 254 MOLEX 38-00-1400 4455C/BAA
Q 0001	200101840	01	TRANST LP SI N*BC 184 * X 55 N2081 INDIC
Q 0002	200101840	01	TRANST LP SI N*BC 184 * X 55 N2081 INDIC
Q 0003	200101840	01	TRANST LP SI N*BC 184 * X 55 N2081 INDIC
Q 0004	200101840	01	TRANST LP SI N*BC 184 * X 55 N2081 INDIC
Q 0005	200101840	01	TRANST LP SI N*BC 184 * X 55 N2081 INDIC
R 0001	116210350	00	POT 50 K 5%A BOB PIOT AM6,35L20,6 LI=0,25 BECMA 7286
R 0002	116210350	00	POT 50 K 5%A BOB PIOT AM6,35L20,6 LI=0,25 BECMA 7286
R 0003	041310274		RES 2,74 K 1 % 0,25W METAL 50 PPM N0112
R 0004	041310115		RES 1,15 K 1 % 0,25W METAL 50 PPM N0112
R 0005	016432200		RES 2,2 M 5 % 0,25W CARBON N0102

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
R 0006	016410100	00	RES 1,0 K 5 % 0,25W CARBON N0102
R 0007	016401500		RES 150 OHM 5 % 0,25W CARBON N0102
R 0008	016422200		RES 220 K 5 % 0,25W CARBON N0102
R 0009	016405600		RES 560 OHM 5 % 0,25W CARBON N0102
R 0010	016408200		RES 820 OHM 5 % 0,25W CARBON N0102
R 0011	068034900	00	RES 9 M 1 % 0,6 W CERMET SFERN RHV-1
RR0001	087813488	00	RESEAU RES 220 K 4 2 % IDEN SIL 8 SFERN SIL8-4
RR0002	087813319	00	RESEAU RES 4,7 K 4 2 % IDEN SIL 8 SFERN SIL8-4
RR0003	087813160	00	RESEAU RES 150 OHM 4 2 % IDEN SIL 8 SFERN SIL 8-4
R12-13 -14-15	035203115		4 RESIST. 150 OHM 0,25 W 4
S 0001	218160102	04	COMMUT MODUL 1TOU 2P 1C BRONZ AG JEANR MDP S-PROF SANS BOUT
U 0001	200704020	00	00 AFF 7SEG LED 7,6MM ROUGE BU PDD HP--- 5082 7736
U 0002	200777400		00 AFF 7SEG LED 8 MM ROUGE CC PDD HP--- 5082 7740
U 0003	200777400		00 AFF 7SEG LED 8 MM ROUGE CC PDD HP--- 5082 7740
U 0004	200777400		00 AFF 7SEG LED 8 MM ROUGE CC PDD HP--- 5082 7740
U 0005	266475492	00	CI INT LIN *MC 75492 *INTERF DIL 14 MOTOR
U 0006	264045110		CI INT LOG CMS MC 14511BCP DECOD DIL 16 N2205
Z 0005	75224070506	06	RECAP CI Z5 VOLTEMETRE

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Circuit Z6 - Clavier

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION	
	652240804	00	SCHEMA ELECTRIQUE CD PANNEAU AVANT	5224
	752240706 02	00	RECAP CI Z6	5224
	874041026	00	BOUTON COMMUTATEUR ADISQUE	5537
	876544006	00	BUTEE POUR CI	5224
CR0001	200707001	00	DIOD LUMIN 3 MM VERTE SIEMS CQV35E	2,30
CR0002	200707001	00	DIOD LUMIN 3 MM VERTE SIEMS CQV35E	2,30
CR0003	200707001	00	DIOD LUMIN 3 MM VERTE SIEMS CQV35E	2,30
CR0004	200707001	00	DIOD LUMIN 3 MM VERTE SIEMS CQV35E	2,30
CR0005	200707001	00	DIOD LUMIN 3 MM VERTE SIEMS CQV35E	2,30
CR0006	200707001	00	DIOD LUMIN 3 MM VERTE SIEMS CQV35E	2,30
CR0007	200707001	00	DIOD LUMIN 3 MM VERTE SIEMS CQV35E	2,30
CR0008	200707001	00	DIOD LUMIN 3 MM VERTE SIEMS CQV35E	2,30
CR0009	200707001	00	DIOD LUMIN 3 MM VERTE SIEMS CQV35E	2,30
CR0010	200707001	00	DIOD LUMIN 3 MM VERTE SIEMS CQV35E	2,30
CR0011	200707001	00	DIOD LUMIN 3 MM VERTE SIEMS CQV35E	2,30
CR0012	200707001	00	DIOD LUMIN 3 MM VERTE SIEMS CQV35E	2,30
CR0013	200707001	00	DIOD LUMIN 3 MM VERTE SIEMS CQV35E	2,30
CR0014	200707001	00	DIOD LUMIN 3 MM VERTE SIEMS CQV35E	2,30
CR0015	200707001	00	DIOD LUMIN 3 MM VERTE SIEMS CQV35E	2,30
CR0016	200707001	00	DIOD LUMIN 3 MM VERTE SIEMS CQV35E	2,30
CR0017	200707001	00	DIOD LUMIN 3 MM VERTE SIEMS CQV35E	2,30
CR0018	200707001	00	DIOD LUMIN 3 MM VERTE SIEMS CQV35E	2,30
CR0019	200744840	00	DIOD LUMIN 3 MM ROUGE HP--- HLMP-1000 5082-4480	
CR0020	200744840	00	DIOD LUMIN 3 MM ROUGE HP--- HLMP-1000 5082-4480	
CR0021	200744840	00	DIOD LUMIN 3 MM ROUGE HP--- HLMP-1000 5082-4480	
CR0022	200707001	00	DIOD LUMIN 3 MM VERTE SIEMS CQV35E	2,30
CR0023	200707001	00	DIOD LUMIN 3 MM VERTE SIEMS CQV35E	2,30
CR0024	200707001	00	DIOD LUMIN 3 MM VERTE SIEMS CQV35E	2,30
CR0025	200707001	00	DIOD LUMIN 3 MM VERTE SIEMS CQV35E	2,30
CR0026	200707001	00	DIOD LUMIN 3 MM VERTE SIEMS CQV35E	2,30
CR0027	200707001	00	DIOD LUMIN 3 MM VERTE SIEMS CQV35E	2,30
CR0028	200707001	00	DIOD LUMIN 3 MM VERTE SIEMS CQV35E	2,30
CR0029	200707001	00	DIOD LUMIN 3 MM VERTE SIEMS CQV35E	2,30
CR0030	200707001	00	DIOD LUMIN 3 MM VERTE SIEMS CQV35E	2,30
CR0031	200707001	00	DIOD LUMIN 3 MM VERTE SIEMS CQV35E	2,30
CR0032	200707001	00	DIOD LUMIN 3 MM VERTE SIEMS CQV35E	2,30
CR0033	200707001	00	DIOD LUMIN 3 MM VERTE SIEMS CQV35E	2,30
RR0001	087810319	00	RESEAU RES 2,7 K 7 2 % IDEN SIL 8 NO190	
RR0002	087810319	00	RESEAU RES 2,7 K 7 2 % IDEN SIL 8 NO190	
RR0003	087810319	00	RESEAU RES 2,7 K 7 2 % IDEN SIL 8 NO190	
RR0004	087810319	00	RESEAU RES 2,7 K 7 2 % IDEN SIL 8 NO190	
RR0005	087810319	00	RESEAU RES 2,7 K 7 2 % IDEN SIL 8 NO190	
S 0001	218160102	04	COMMUT MODUL 1TOU 2P 1C BRONZ AG JEANR MDP S-PROF SANS BOUT	
S 0002	218160102	04	COMMUT MODUL 1TOU 2P 1C BRONZ AG JEANR MDP S-PROF SANS BOUT	
S 0003	218160102	04	COMMUT MODUL 1TOU 2P 1C BRONZ AG JEANR MDP S-PROF SANS BOUT	
S 0004	218160102	04	COMMUT MODUL 1TOU 2P 1C BRONZ AG JEANR MDP S-PROF SANS BOUT	
S 0005	218160102	04	COMMUT MODUL 1TOU 2P 1C BRONZ AG JEANR MDP S-PROF SANS BOUT	
S 0006	218160102	04	COMMUT MODUL 1TOU 2P 1C BRONZ AG JEANR MDP S-PROF SANS BOUT	
S 0007	218160102	04	COMMUT MODUL 1TOU 2P 1C BRONZ AG JEANR MDP S-PROF SANS BOUT	
S 0008	218160102	04	COMMUT MODUL 1TOU 2P 1C BRONZ AG JEANR MDP S-PROF SANS BOUT	

7 5224 1041 Circuit Z6 - Clavier

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
S 0009	218160102	04	COMMUT MODUL 1TOU 2P 1C BRONZ AG JEANR MDP S-PROF SANS BOUT
S 0010	218160102	04	COMMUT MODUL 1TOU 2P 1C BRONZ AG JEANR MDP S-PROF SANS BOUT
S 0011	218160102	04	COMMUT MODUL 1TOU 2P 1C BRONZ AG JEANR MDP S-PROF SANS BOUT
S 0012	218160102	04	COMMUT MODUL 1TOU 2P 1C BRONZ AG JEANR MDP S-PROF SANS BOUT
S 0013	218160102	04	COMMUT MODUL 1TOU 2P 1C BRONZ AG JEANR MDP S-PROF SANS BOUT
S 0014	218160102	04	COMMUT MODUL 1TOU 2P 1C BRONZ AG JEANR MDP S-PROF SANS BOUT
S 0015	218160102	04	COMMUT MODUL 1TOU 2P 1C BRONZ AG JEANR MDP S-PROF SANS BOUT
S 0016	218160102	04	COMMUT MODUL 1TOU 2P 1C BRONZ AG JEANR MDP S-PROF SANS BOUT
S 0017	218160102	04	COMMUT MODUL 1TOU 2P 1C BRONZ AG JEANR MDP S-PROF SANS BOUT

7 5224 1102 Circuit Z7 - Entrée Y (A, B, C ou D)

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
	253504100	01	PASFIL ANNEAU 4 0,8 CAOUT ROUGE MFOM- 751
	304002060		RONDEL PLAT 2,6X 6 X 0,5 LAITN NICK MFOM- 1A
	304002061	01	RONDEL PLAT 2,6X 6 X 1 ACIER NICK MFOM- 1A
	304302510	00	RONDEL DENTS DE 2,5X 5,5X 0,3 ACIER INOX N6333 NF-E27-618
	309102515	00	VIS C M 2,5X15 ACIER INOX LONG SP
	313406251	00	ECROU SERTI M 2,5 0,8 A 1 ACIER CADM OTALU 3330-025- 0001
	652240810	00	SCHEMA ELECTRIQUE PREAMPLI VOIE A 5224
	752240707	00	RECAP CI Z7 5224
	810500062	00	REPERAGE NOTICE CI ENTREE 5224
	834504007MG	00	COLONNETTE 3,2X5 H=9MM 5224
	841132029	00	EQUERRE BLINDAGE ENTREE Y VOIES A-B-C-D
	899009758	00	MONTAGE ENTREE Y VOIES ABCD 5224
C 0001	149002205	00	CAP 22 PF 5 % 63V CERAM L 508 NO245
C 0002	176505410	00	CAP 0,1 MF 10 % 250V POLYEST RAD 100 SIEMS B32511-D3104-K
J 0100	213202900	00	CONNEC COAX EMBAS FEM 1C SOUD BNC 500HM RADIA R 141404- UG 290A/U
R 0001	035203047		RES 47 OHM 5 % 0,12W METAL 100 PPM NO101
S 0010	892700025	00	COMMUTATEUR A GLISSIERE VOIR PLAN 5224 SEUFF

7 5224 1032

Circuit Z8 - Post-accélération

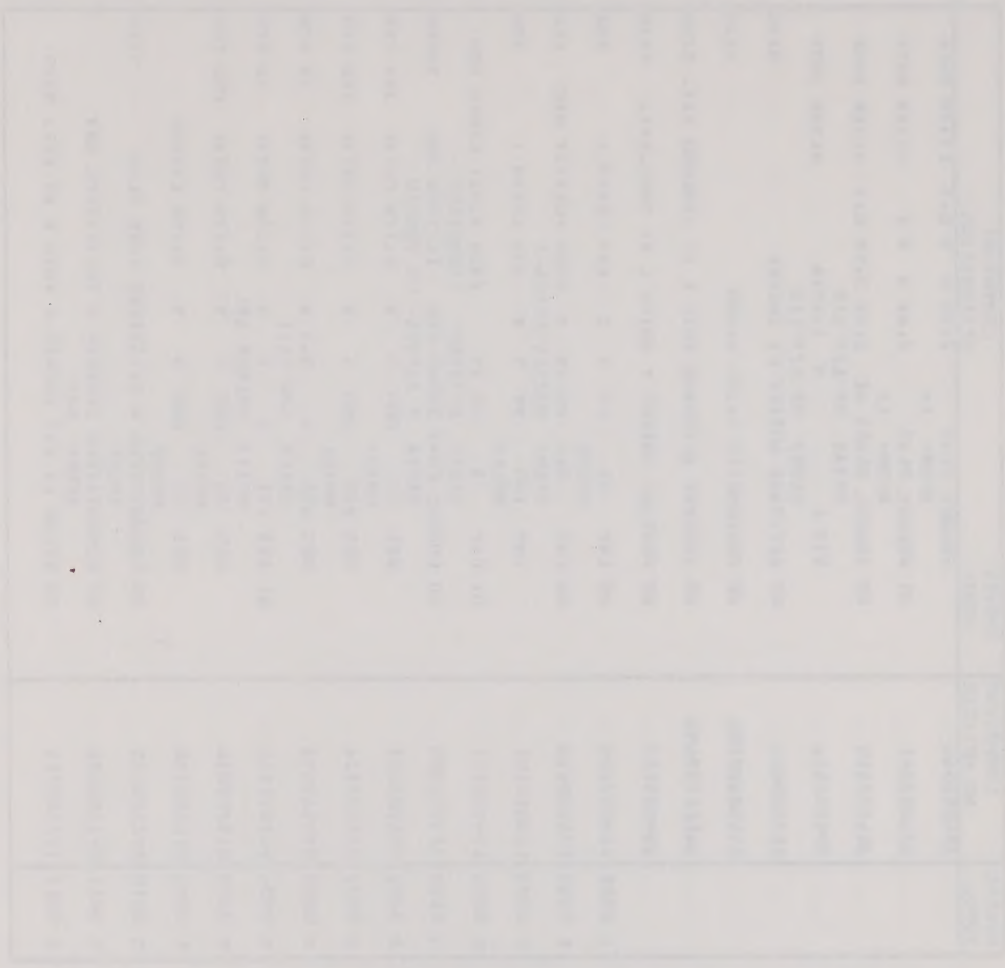
REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION
	300540143	00	CABLA FIXAT ENTRETOISE CLIPSABLE NYLON 952 RICHC CBS-6N
	652240803	00	SCHEMA ELECTRIQUE AMPLI ALLUMAGE 5224
	752240708	00	RECAP CI Z8 5224
	867542270	00	PLAQUETTE PROTECTION THT 5220- 5224
C 0001	147411006	01	CAP 1000 PF 20 % 3000V CERAM 2 RAD 1016 LCC-- QCW 611
C 0002	147411006	01	CAP 1000 PF 20 % 3000V CERAM 2 RAD 1016 LCC-- QCW 611
C 0003	147411006	01	CAP 1000 PF 20 % 3000V CERAM 2 RAD 1016 LCC-- QCW 611
C 0004	147411006	01	CAP 1000 PF 20 % 3000V CERAM 2 RAD 1016 LCC-- QCW 611
C 0005	147411006	01	CAP 1000 PF 20 % 3000V CERAM 2 RAD 1016 LCC-- QCW 611
C 0006	147411006	01	CAP 1000 PF 20 % 3000V CERAM 2 RAD 1016 LCC-- QCW 611
C 0007	147411006	01	CAP 1000 PF 20 % 3000V CERAM 2 RAD 1016 LCC-- QCW 611
C 0008	147411006	01	CAP 1000 PF 20 % 3000V CERAM 2 RAD 1016 LCC-- QCW 611
C 0009	147411006	01	CAP 1000 PF 20 % 3000V CERAM 2 RAD 1016 LCC-- QCW 611
C 0010	147411006	01	CAP 1000 PF 20 % 3000V CERAM 2 RAD 1016 LCC-- QCW 611
C 0011	147736147	00	CAP 470 PF-20+50 3000V CERAM 2 LCC-- QCX 608
C 0012	147736147	00	CAP 470 PF-20+50 3000V CERAM 2 LCC-- QCX 608
C 0013	147736147	00	CAP 470 PF-20+50 3000V CERAM 2 LCC-- QCX 608
C 0014	147736147	00	CAP 470 PF-20+50 3000V CERAM 2 LCC-- QCX 608
C 0015	147736147	00	CAP 470 PF-20+50 3000V CERAM 2 LCC-- QCX 608
C 0016	147736147	00	CAP 470 PF-20+50 3000V CERAM 2 LCC-- QCX 608
C 0017	147736147	00	CAP 470 PF-20+50 3000V CERAM 2 LCC-- QCX 608
C 0018	147736147	00	CAP 470 PF-20+50 3000V CERAM 2 LCC-- QCX 608
C 0019	147736147	00	CAP 470 PF-20+50 3000V CERAM 2 LCC-- QCX 608
C 0020	147736147	00	CAP 470 PF-20+50 3000V CERAM 2 LCC-- QCX 608
CR0001	200304480	00	DIOD REDRES+BY 448 + 1,5K 1,5 A 1,5US RTC--
CR0002	200304480	00	DIOD REDRES+BY 448 + 1,5K 1,5 A 1,5US RTC--
CR0003	200304480	00	DIOD REDRES+BY 448 + 1,5K 1,5 A 1,5US RTC--
CR0004	200304480	00	DIOD REDRES+BY 448 + 1,5K 1,5 A 1,5US RTC--
CR0005	200304480	00	DIOD REDRES+BY 448 + 1,5K 1,5 A 1,5US RTC--
CR0006	200304480	00	DIOD REDRES+BY 448 + 1,5K 1,5 A 1,5US RTC--
CR0007	200304480	00	DIOD REDRES+BY 448 + 1,5K 1,5 A 1,5US RTC--
CR0008	200304480	00	DIOD REDRES+BY 448 + 1,5K 1,5 A 1,5US RTC--
CR0009	200304480	00	DIOD REDRES+BY 448 + 1,5K 1,5 A 1,5US RTC--
CR0010	200304480	00	DIOD REDRES+BY 448 + 1,5K 1,5 A 1,5US RTC--
CR0011	200304480	00	DIOD REDRES+BY 448 + 1,5K 1,5 A 1,5US RTC--
CR0012	200304480	00	DIOD REDRES+BY 448 + 1,5K 1,5 A 1,5US RTC--
CR0013	200304480	00	DIOD REDRES+BY 448 + 1,5K 1,5 A 1,5US RTC--
CR0014	200304480	00	DIOD REDRES+BY 448 + 1,5K 1,5 A 1,5US RTC--
CR0015	200304480	00	DIOD REDRES+BY 448 + 1,5K 1,5 A 1,5US RTC--
CR0016	200304480	00	DIOD REDRES+BY 448 + 1,5K 1,5 A 1,5US RTC--
CR0017	200304480	00	DIOD REDRES+BY 448 + 1,5K 1,5 A 1,5US RTC--
CR0018	200304480	00	DIOD REDRES+BY 448 + 1,5K 1,5 A 1,5US RTC--
CR0019	200304480	00	DIOD REDRES+BY 448 + 1,5K 1,5 A 1,5US RTC--
CR0020	200304480	00	DIOD REDRES+BY 448 + 1,5K 1,5 A 1,5US RTC--
J 0001	214421036	01	CONNEC CI IMP EMB MAL 3C PICO COUDE 396 MOLEX 26-10-2031 3246-3A
R 0001	068100510	00	RES 1 M 5 % 0,5 W METAL RTC-- VR 37

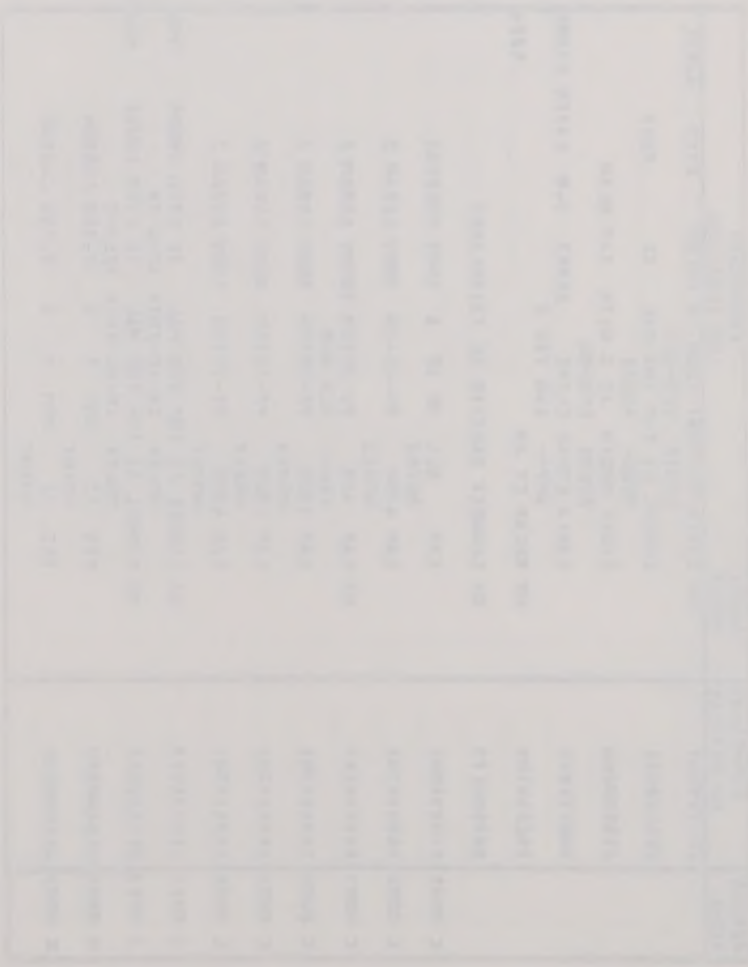
7 5224 1033 Circuit Z9 - Liaison tube

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION	
	203719001	01	CABLA SUPPORT TUBE 14 POLES PICO BAKEL DAUTR 1/9-001	
	214448021		CONNEC CI IMP EMB MAL 1C POST BERG- 48021	
	233500200		CABLE ORDIN 1C S 0,34 1,3 BLAN FILOT EPOF00	
	300171820		CABLA COSSE CLIPS SERTI 2,8 LAITN ETAME AMP-- 140 718 2	
	752240709	00	RECAP CI Z9	5224
	889504179	00	CONNECT BARETTE 4C /315016102	
C 0001	170531001		CAP 0,1 MF 10 % 400V POLYEST NO263	
C 0002	149414701		CAP 4700 PF-20+50 500V CERAM 2 NO243	
C 0003	147736147	00	CAP 470 PF-20+50 3000V CERAM 2 LCC-- QCX 608	
C 0004	149414701		CAP 4700 PF-20+50 500V CERAM 2 NO243	
C 0005	149414701		CAP 4700 PF-20+50 500V CERAM 2 NO243	
C 0006	149414701		CAP 4700 PF-20+50 500V CERAM 2 NO243	
J 0012	214421073	01	CONNEC CI IMP EMB MAL 7C PICO COUDE MOLEX 26-10-2071 3246-7A	396
J 0013	214422052	00	CONNEC CI IMP EMB MAL 5C PICO COUDE MOLEX 10-06-1058 9217-5	508
R 0001	016400220		RES 22 OHM 5 % 0,25W CARBON NO102	
R 0002	016400220		RES 22 OHM 5 % 0,25W CARBON NO102	

7 5220 1122 Circuit Z17 - Entrée (C ou Synchro Ext)

REPERE TOPO.	COMPOSANT NO ARTICLE	INDICE MODIF	COMPOSANT DESIGNATION	
	304002060		RONDEL PLAT 2,6X 6 X 0,5 LAITN NICK MFOM- 1A	
	304002061	01	RONDEL PLAT 2,6X 6 X 1 ACIER NICK MFOM- 1A	
	304302510	00	RONDEL DENTS DE 2,5X 5,5X 0,3 ACIER INOX N6333 NF-E27-618	
	309102516		VIS C M 2,5X16 ACIER INOX N6003 NF-E27-115	
	810500063	00	REPERAGE NOTICE CI ENTREE	5220
	834504007MG	00	COLONNETTE 3,2X5 H=9MM	5224
	841122074MG	00	EQUERRE BLINDAGE VOIE C ET SYNCHRO EXT.	5220
	899009759	00	MONTAGE ENTREE Y VOIES C ET SYNC.EXT.	5220
C 0001	149002205	00	CAP 22 PF 5 % 63V CERAM 1 NO245	508
C 0002	176505410	00	CAP 0,1 MF 10 % 250V POLYEST RAD SIEMS B32511-D3104-K	100
C 0003	149010101		CAP 100 PF 5 % 63V CERAM 1 NO245	508
C 0004	154902151	01	CAP 3 PF 15 250V AJUST CERAM TUB STETT R-TRIKO- 310805500	
J 0100	213202900	00	CONNEC COAX EMBAS FEM 1C SOUD BNC RADIA R 141404- UG 290A/U	500HM
R 0001	035203047		RES 47 OHM 5 % 0,12W METAL 100 PPM NO101	
R 0002	035203124		RES 240 OHM 5 % 0,12W METAL 100 PPM NO101	
R 0003	075363898		RES 898 K 0,5 % 0,5 W METAL 25 PPM DRALR SMA 0411	
R 0004	041321110	01	RES 111 K 1 % 0,25W METAL 50 PPM NO112 VALEUR SPE	
R 0005	035203036		RES 36 OHM 5 % 0,12W METAL 100 PPM NO101	
R 0006	016400390		RES 39 OHM 5 % 0,25W CARBON NO102	
S 0010	892700025	00	COMMUTATEUR A GLISSIERE VOIR PLAN SEUFF	5224
S 0011	892700026	00	COMMUTATEUR SEUFFER 2 POSIT.TYPE 607 SEUFF 607	
Z 0017	752200717	00	RECAP CI Z17 ENTREE Y VOIE C ET EXT.	5220





MP MASTER
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